

# AOC Scenario



**Phil Smith**  
**Carla Beck**  
**Steve Caisse**

**Ohio State University**



# AOC Scenario

## Proposed foundation:

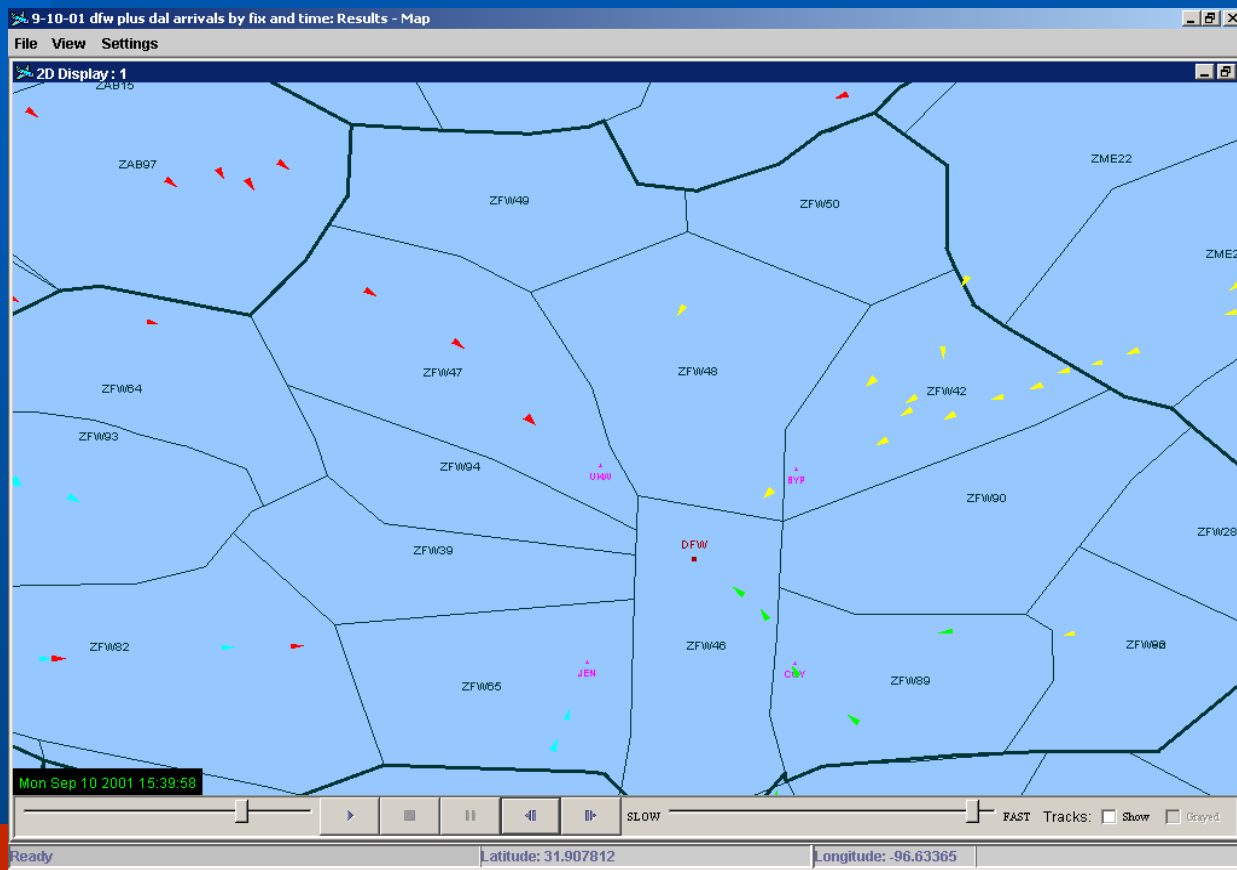
- DFW and DAL arrivals
- 9/10/01
- 1530 -1630 Z

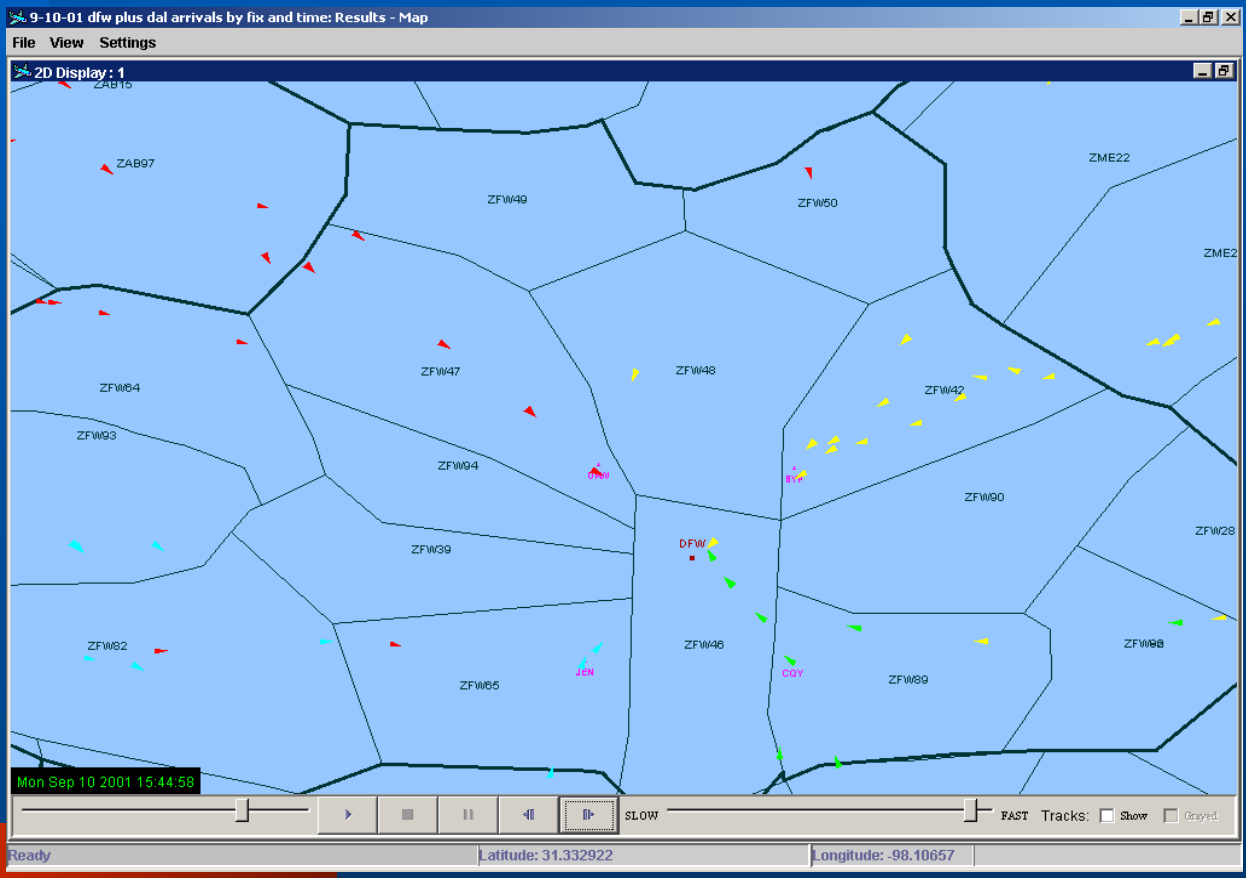
# AOC Scenario

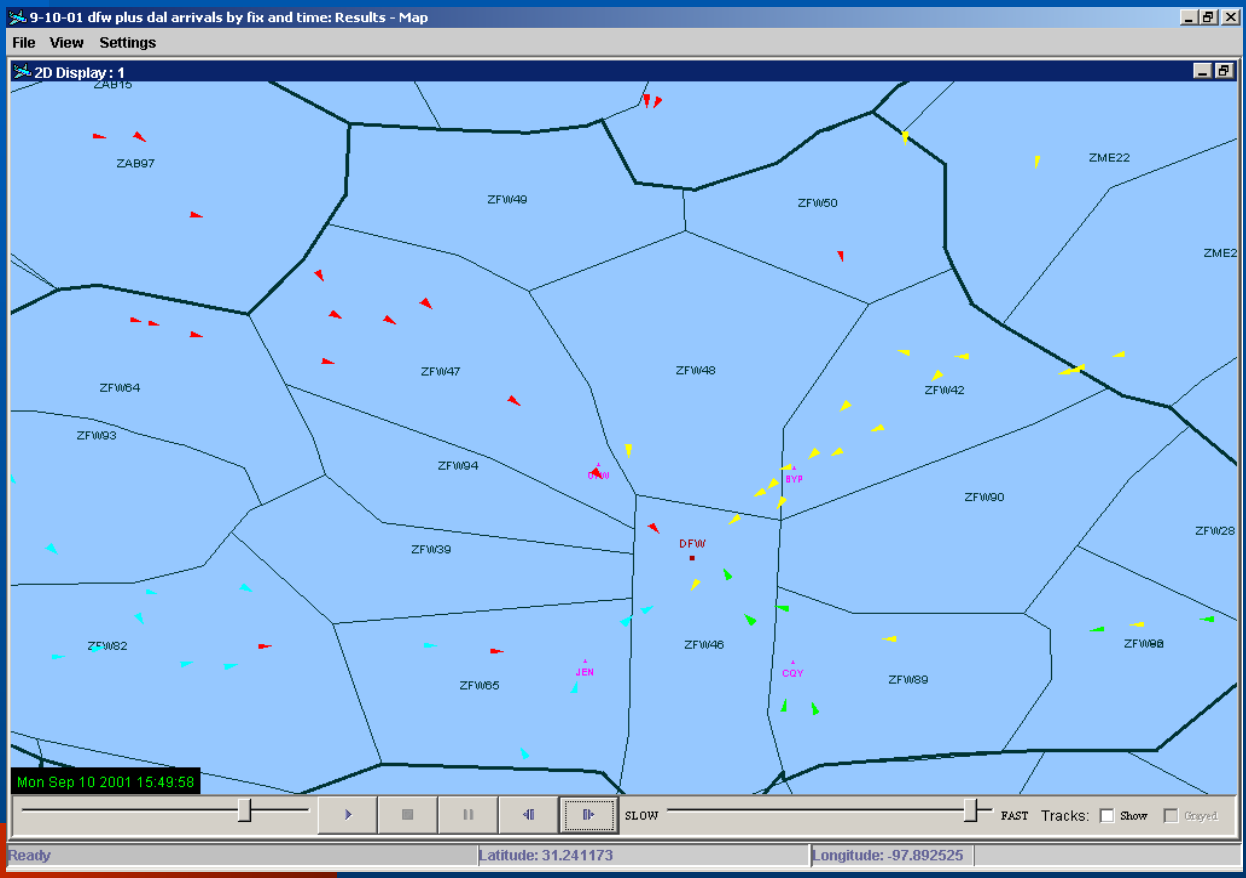


**Arrivals color-coded by arrival fix  
(with ETMS errors in fix determination)**

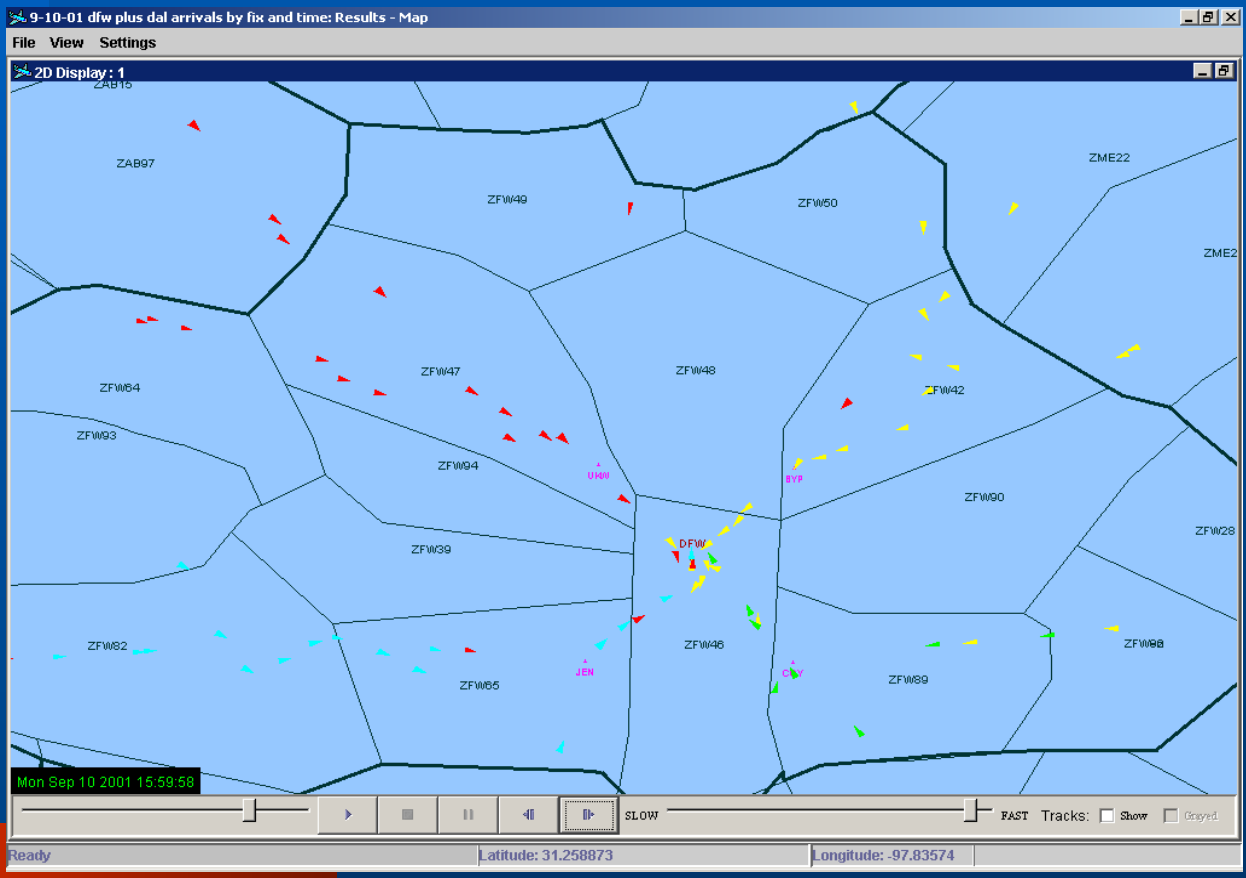




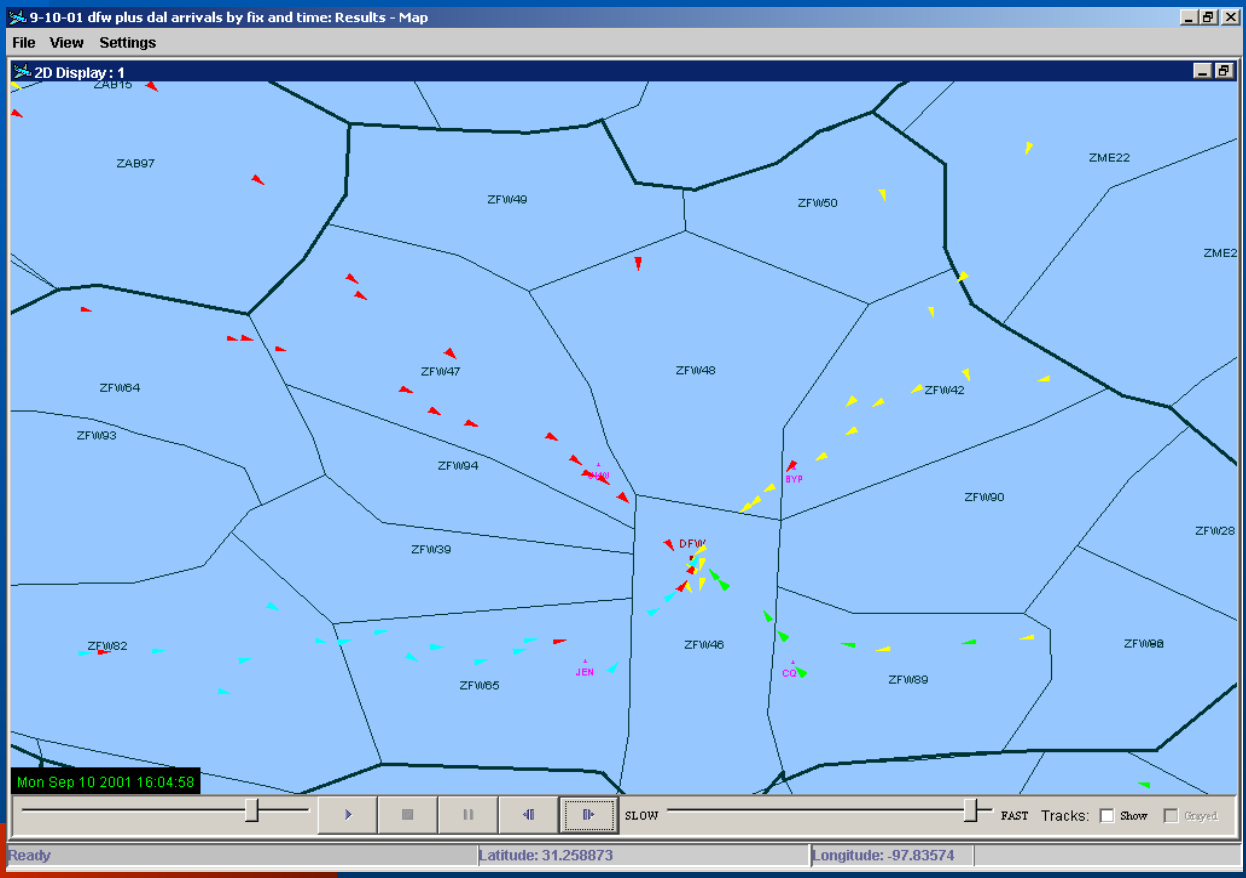


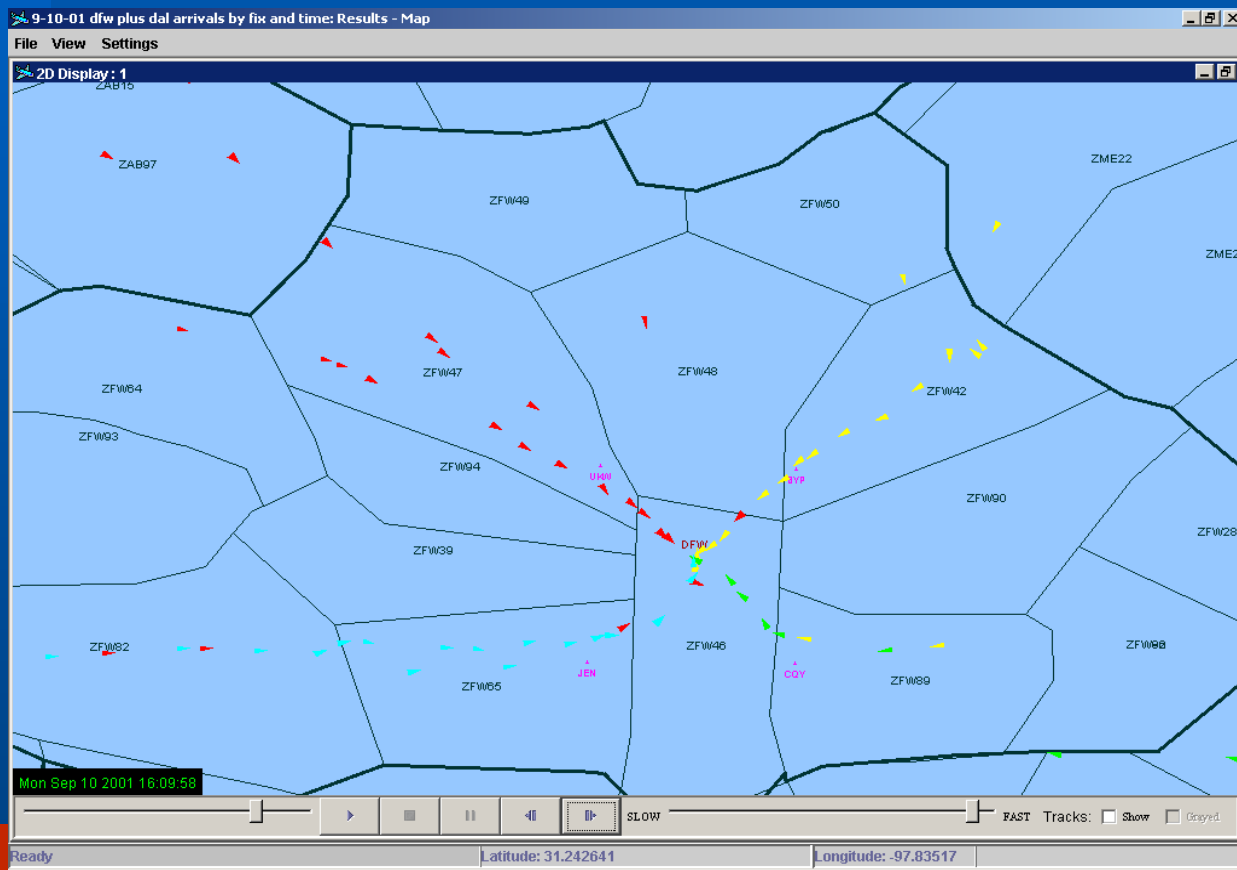


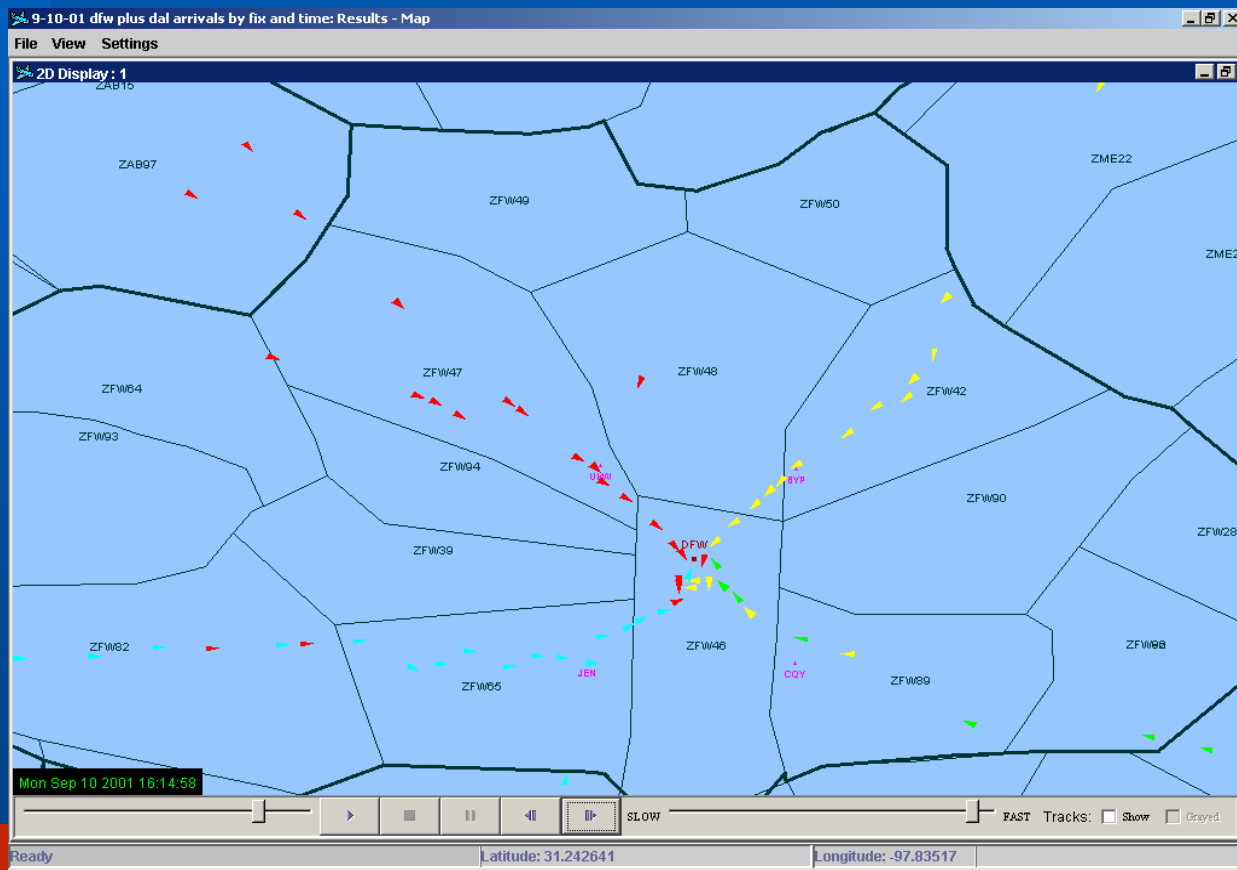


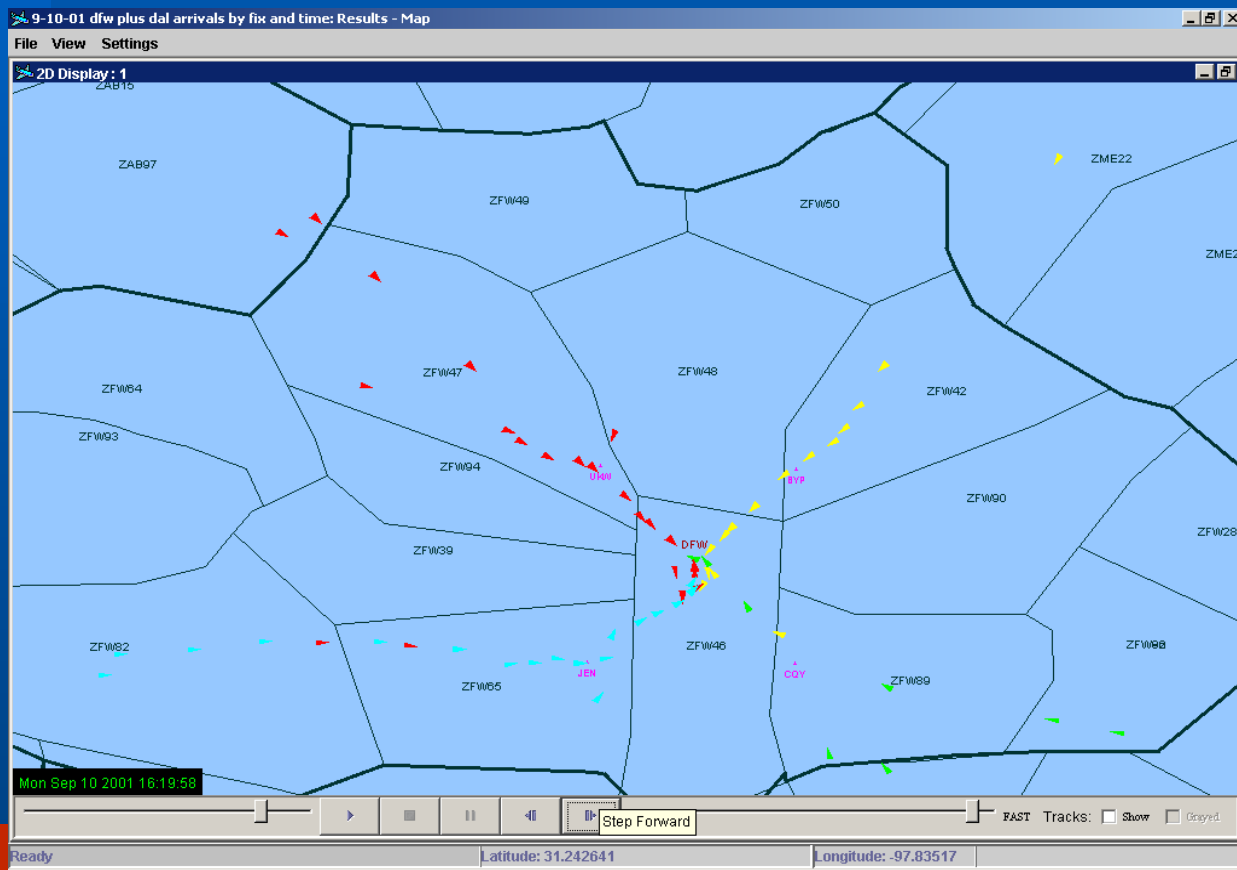


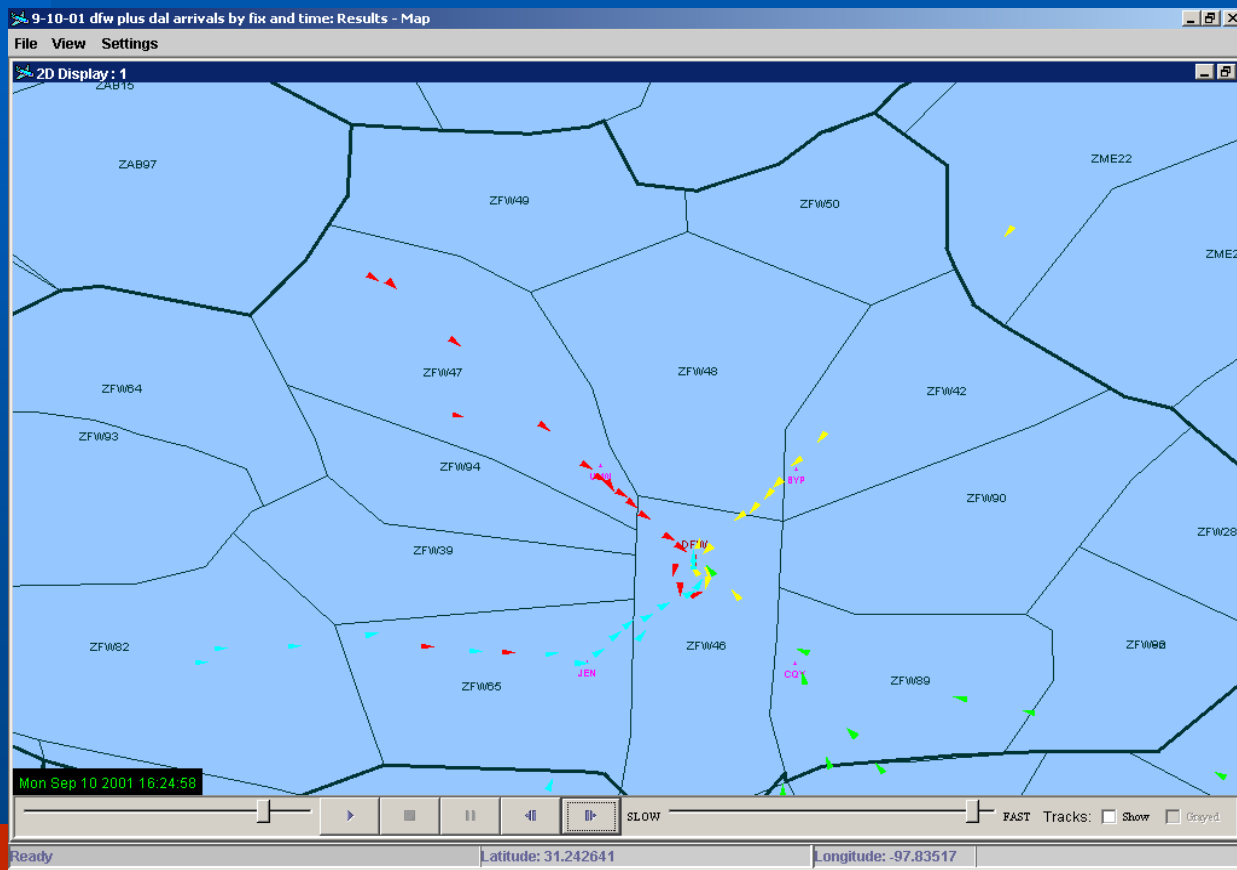


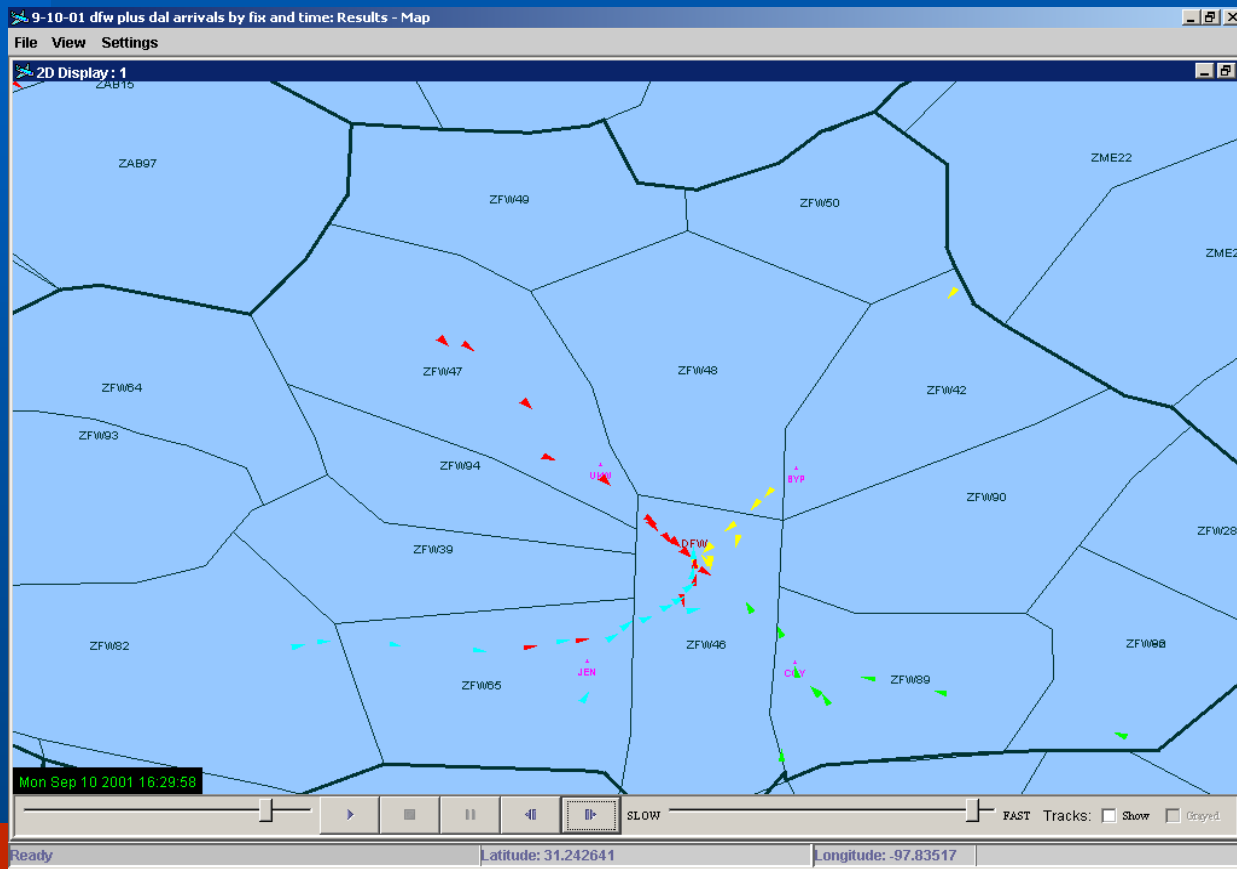


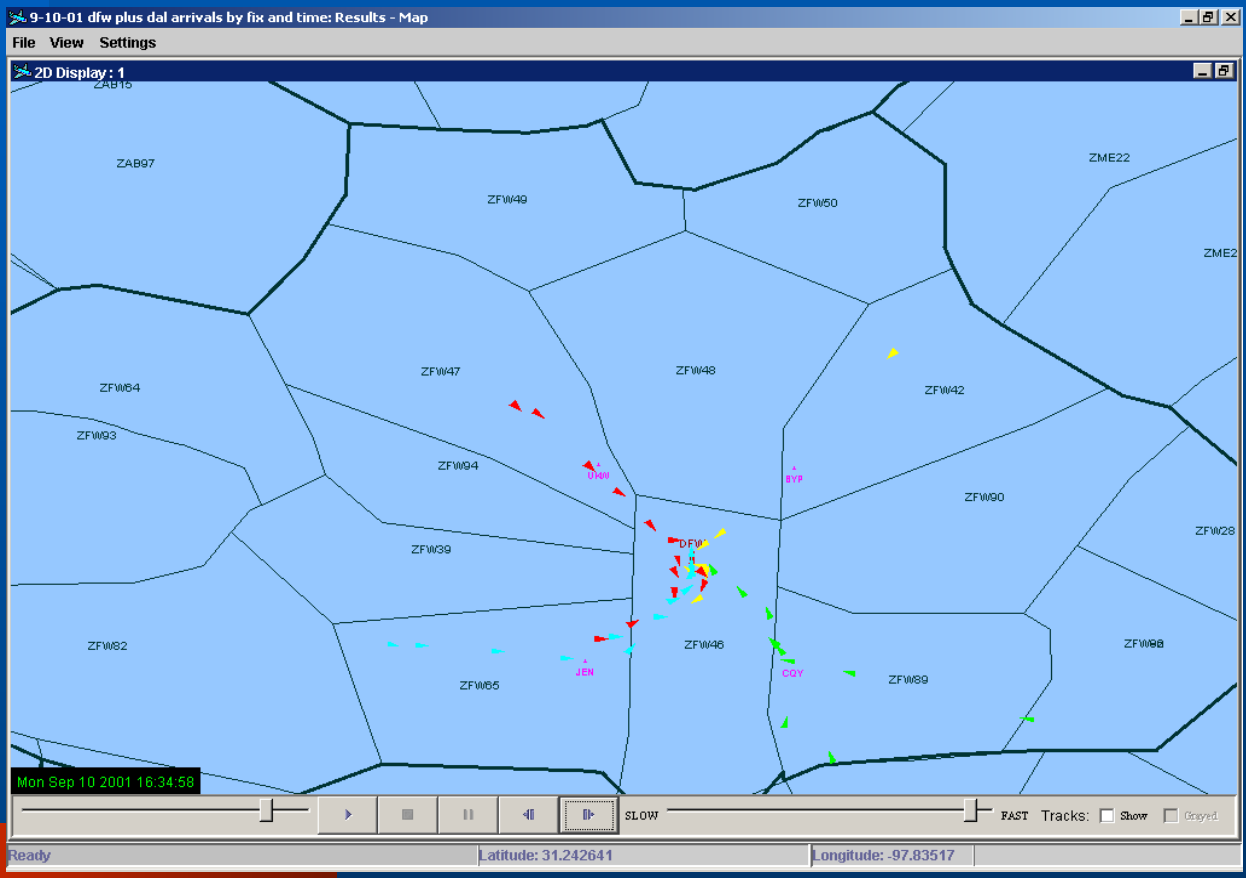


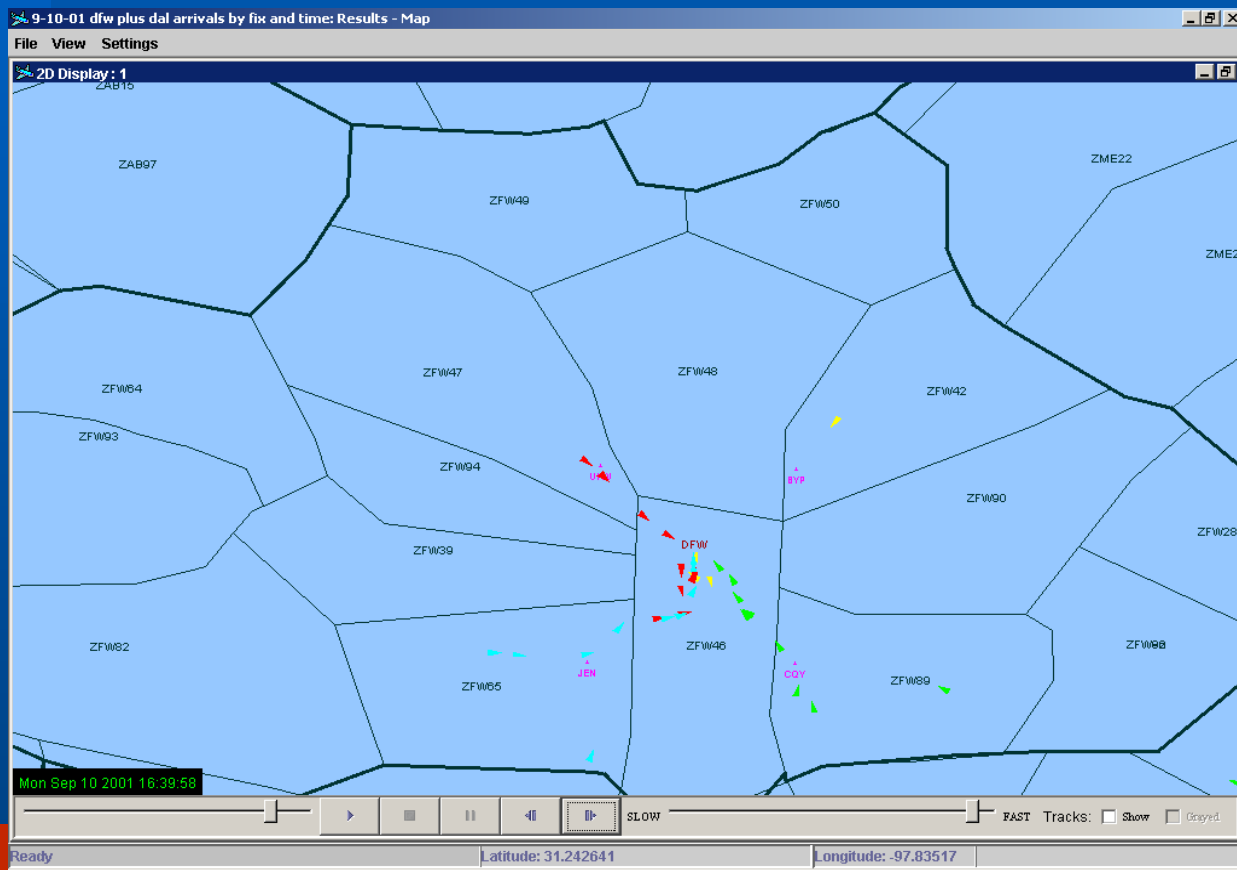












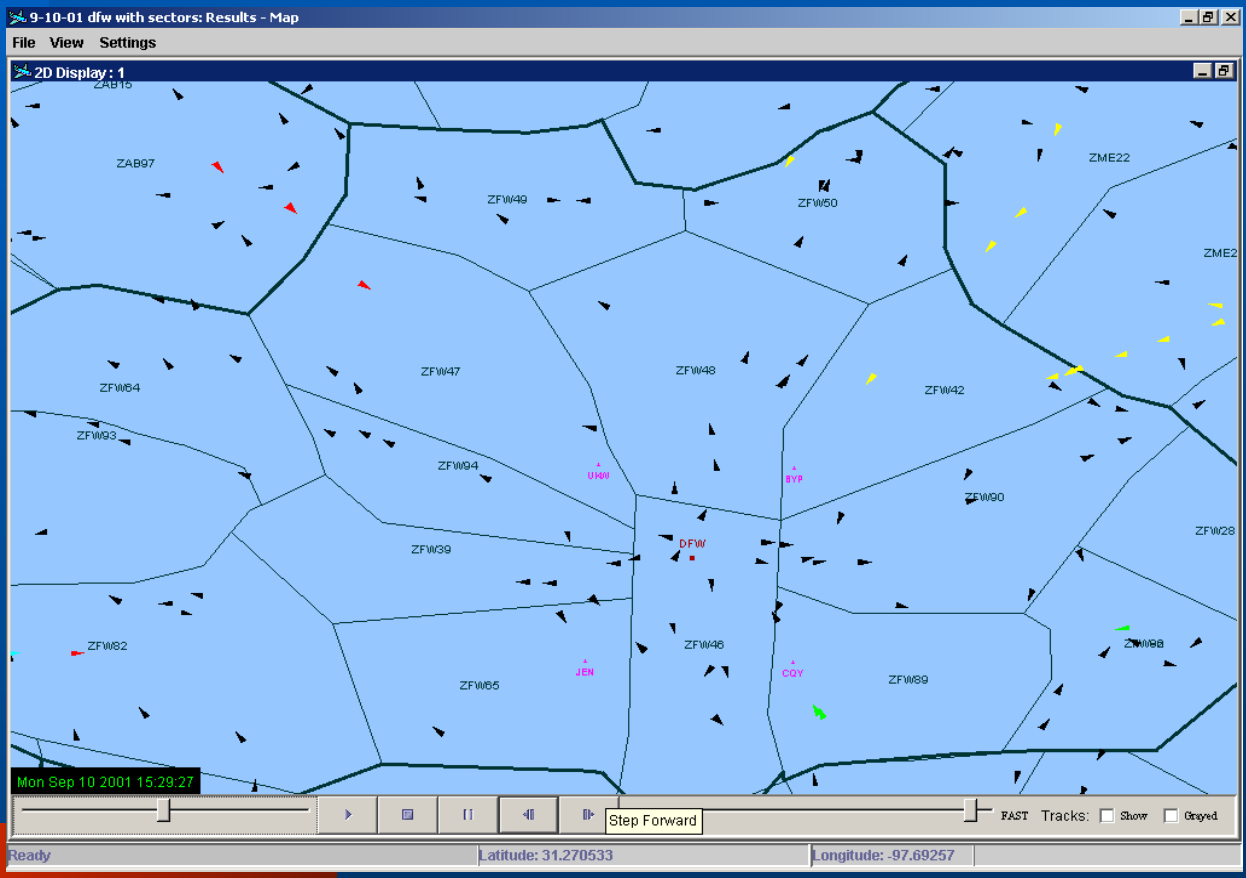


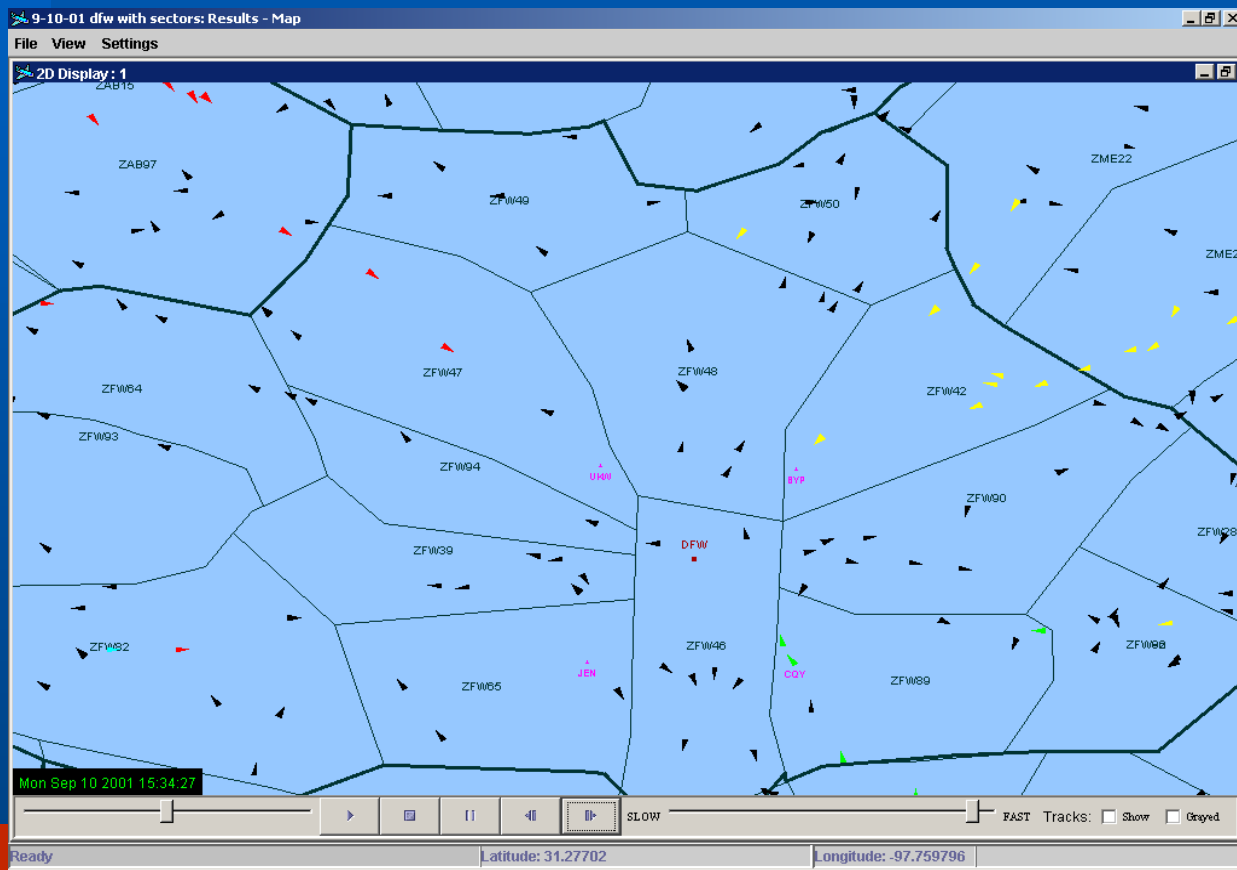
# AOC Scenario

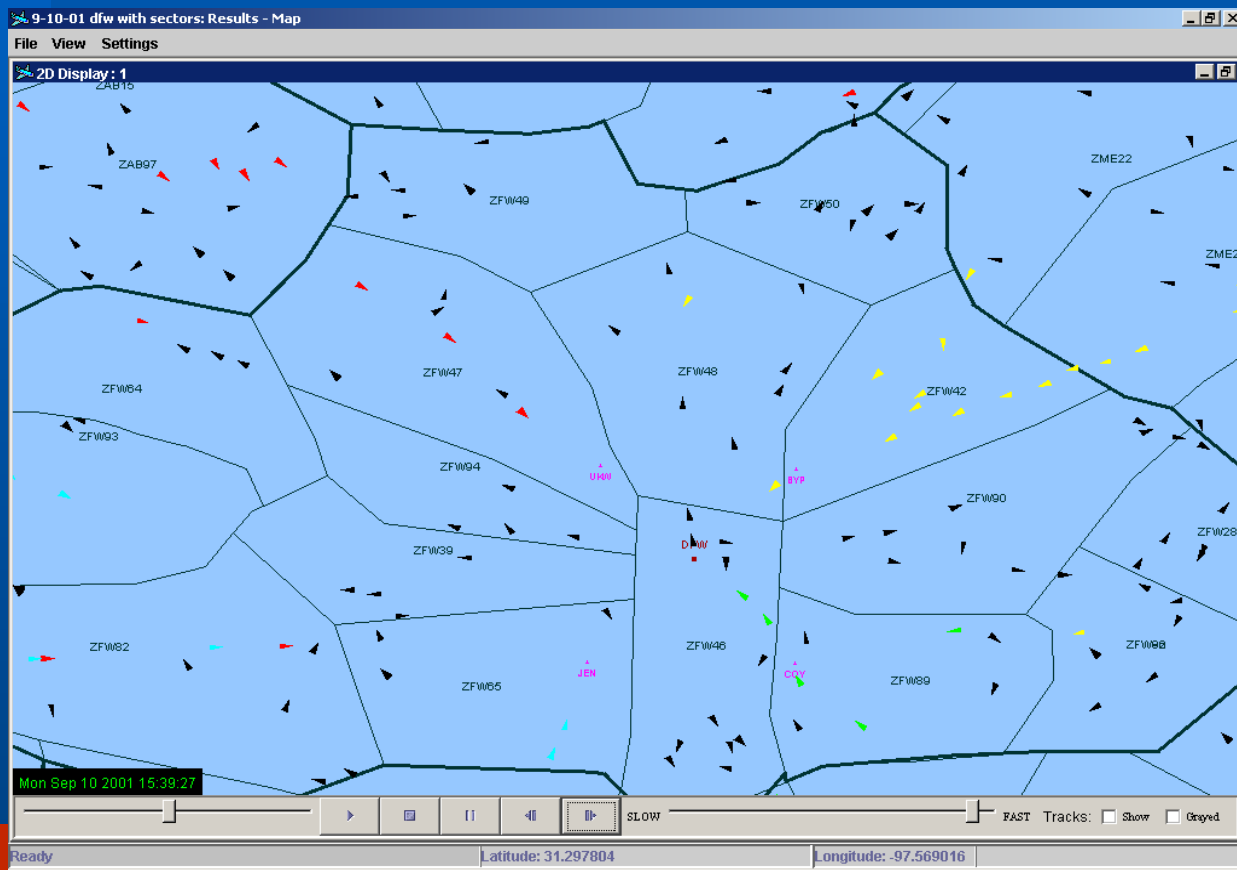


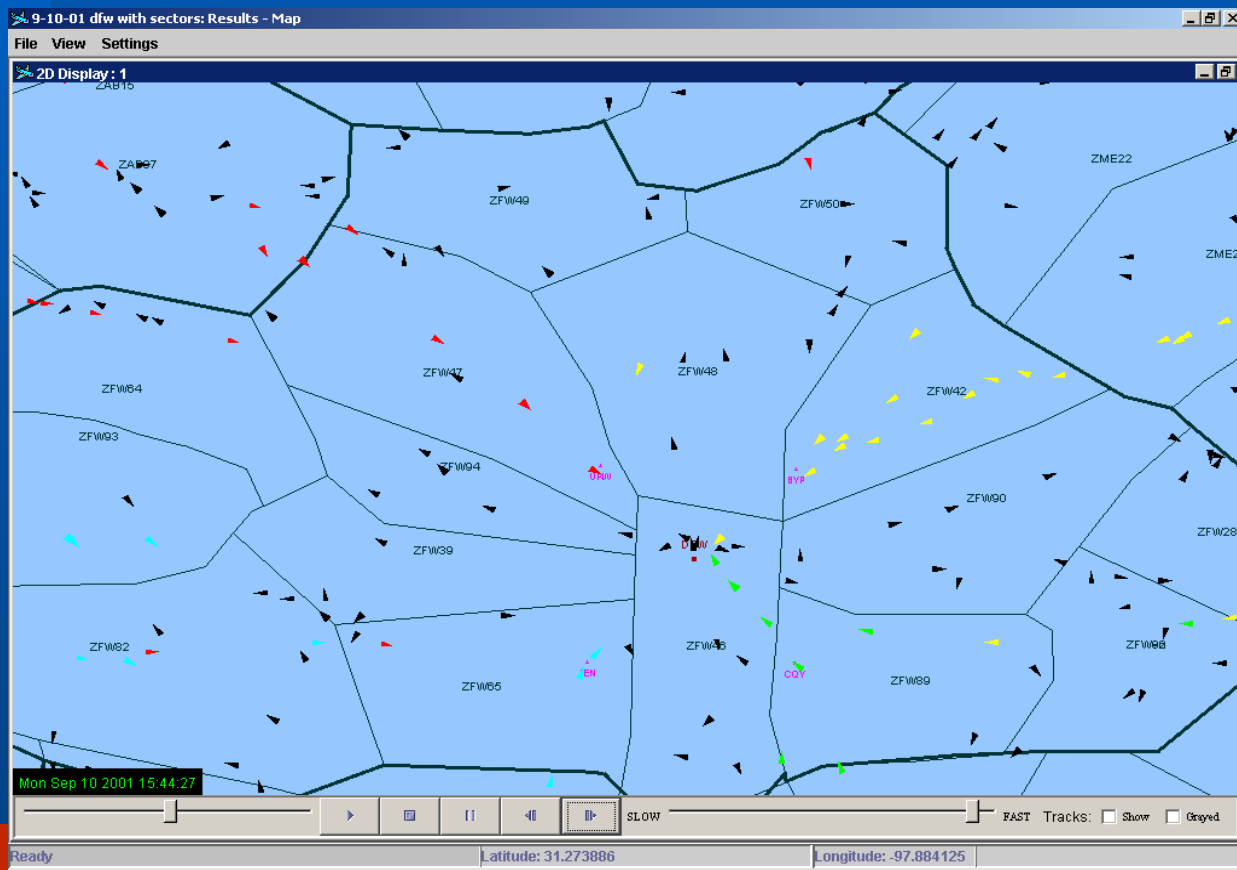
**Departures and overflights  
added to arrivals color-coded by arrival fix  
(with ETMS errors in fix determination)**

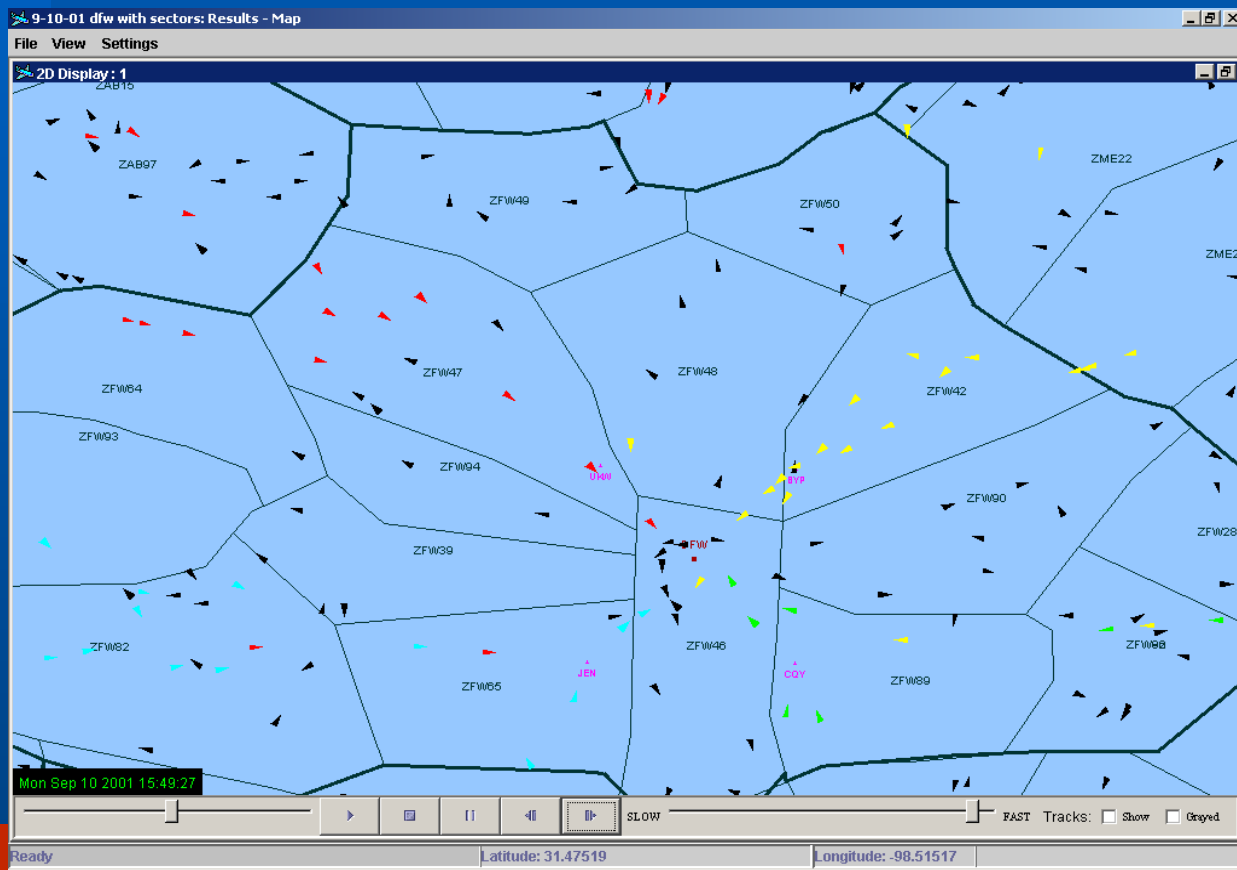


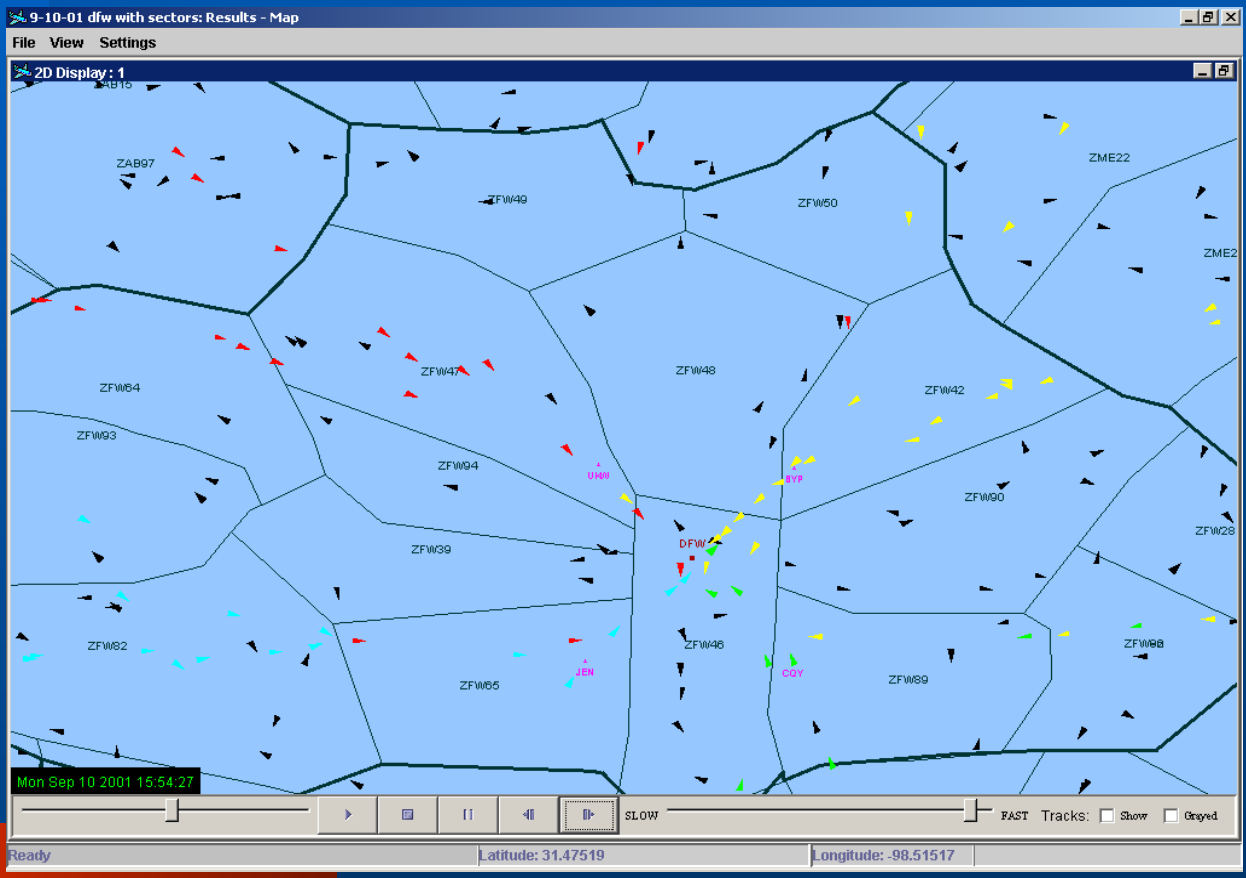


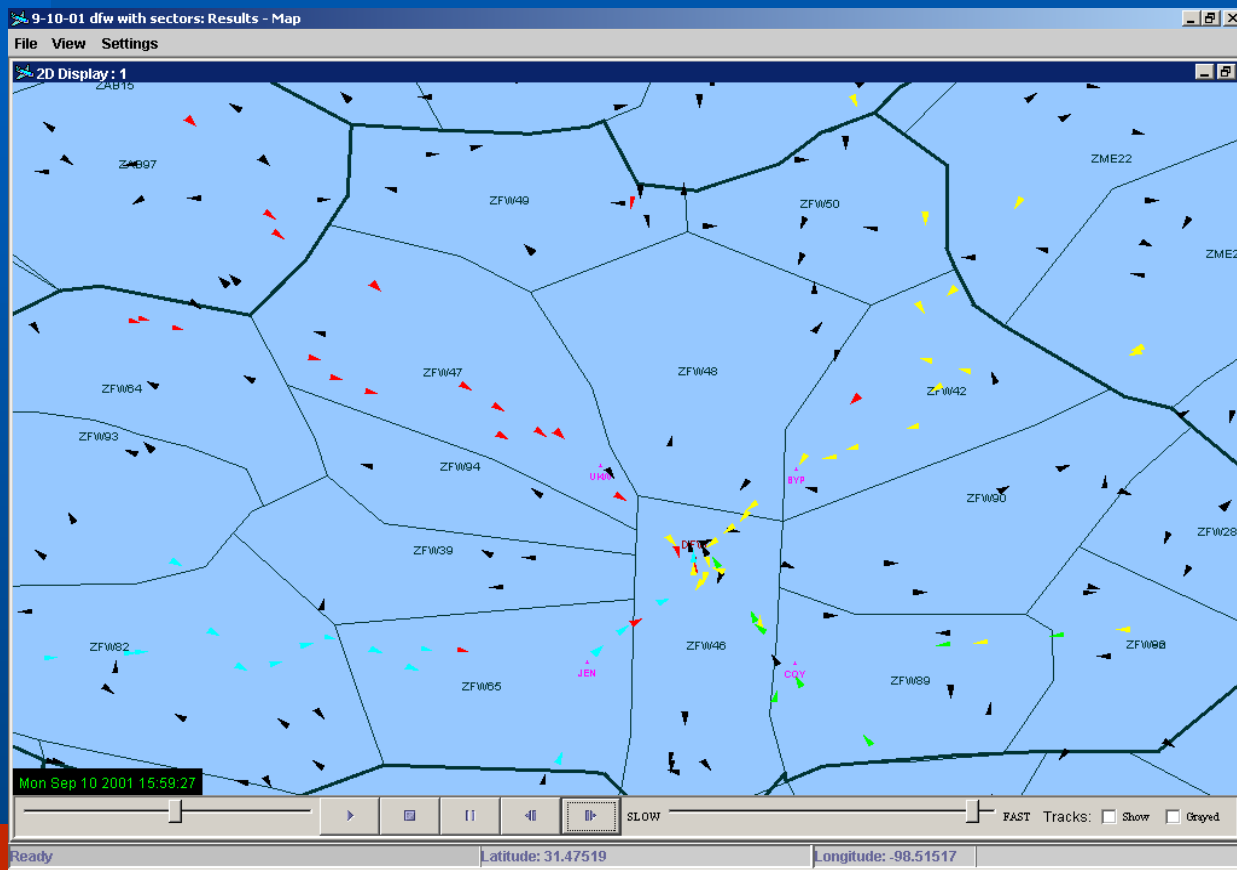




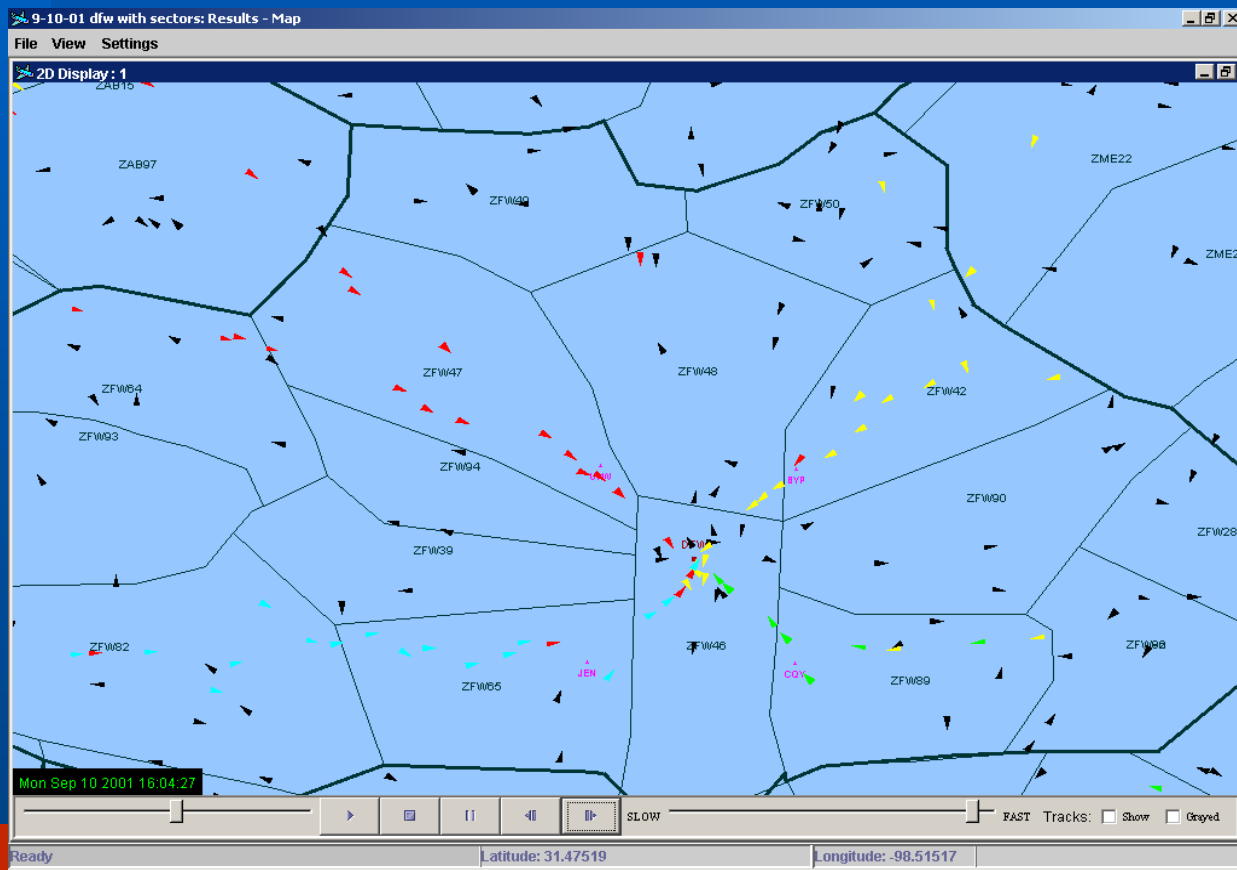


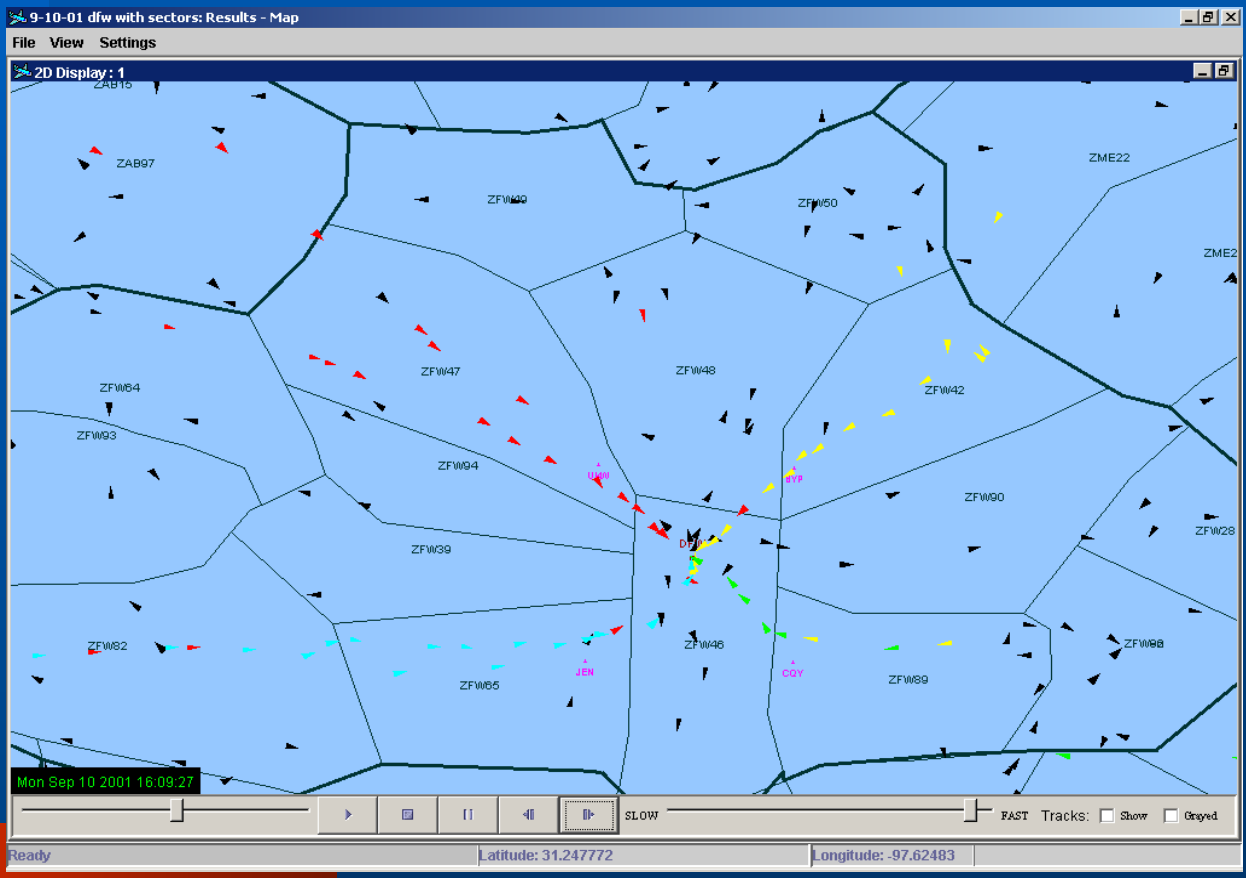




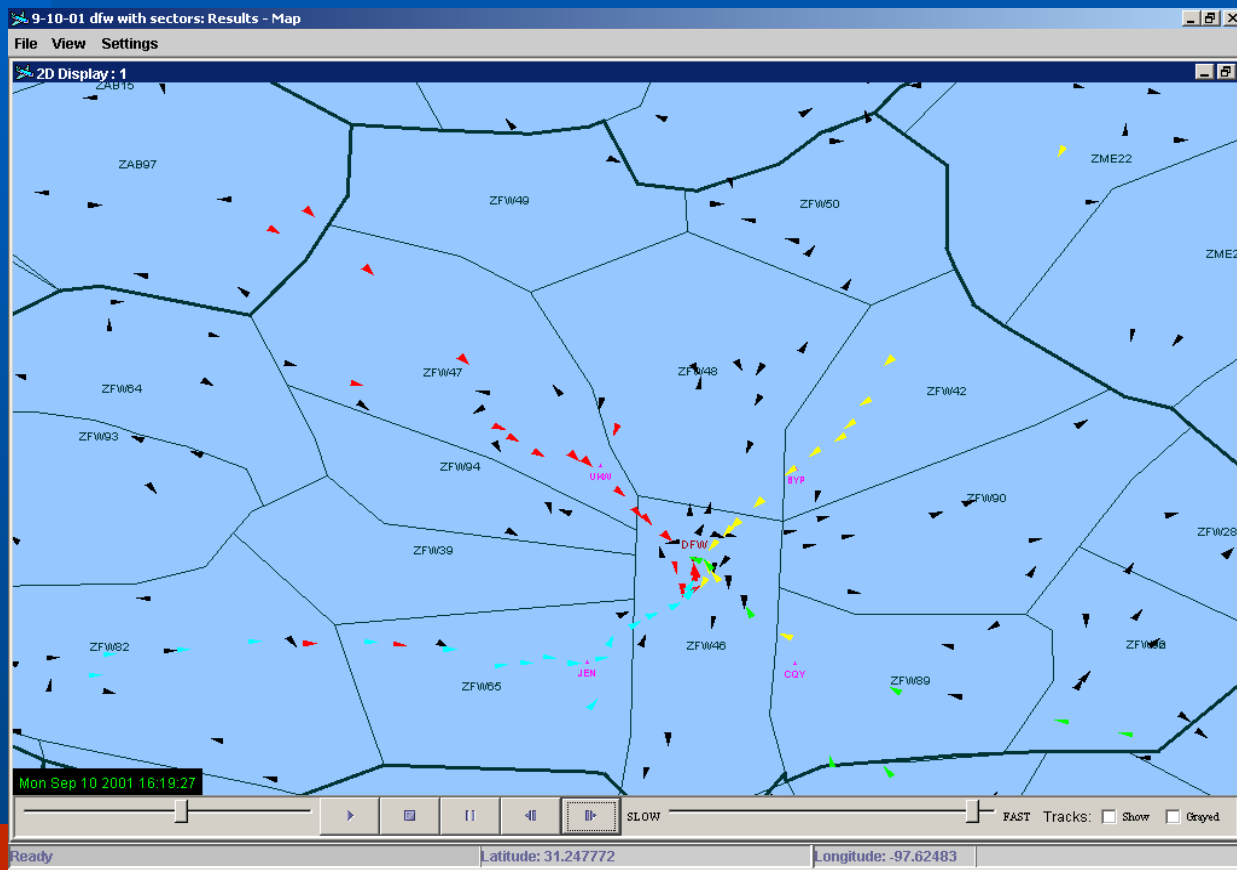


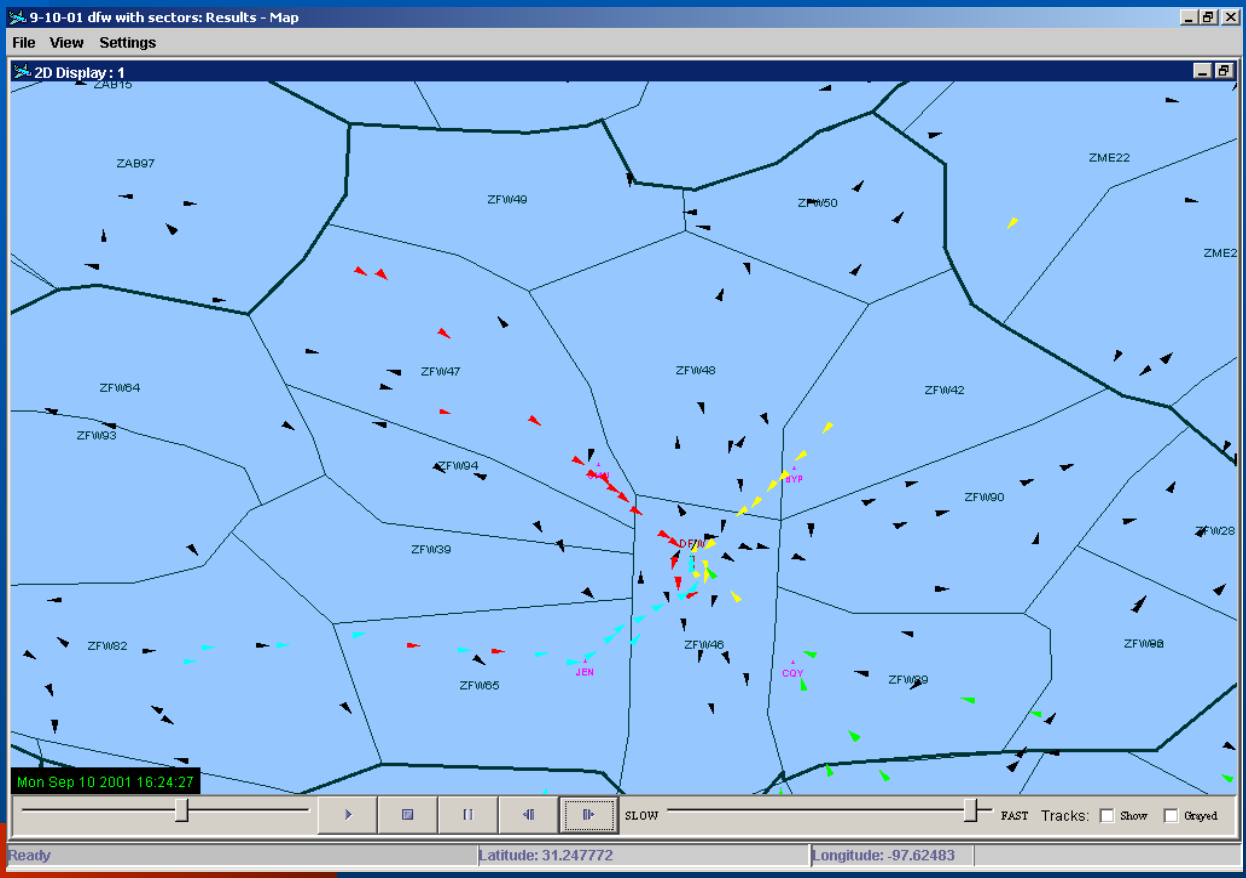


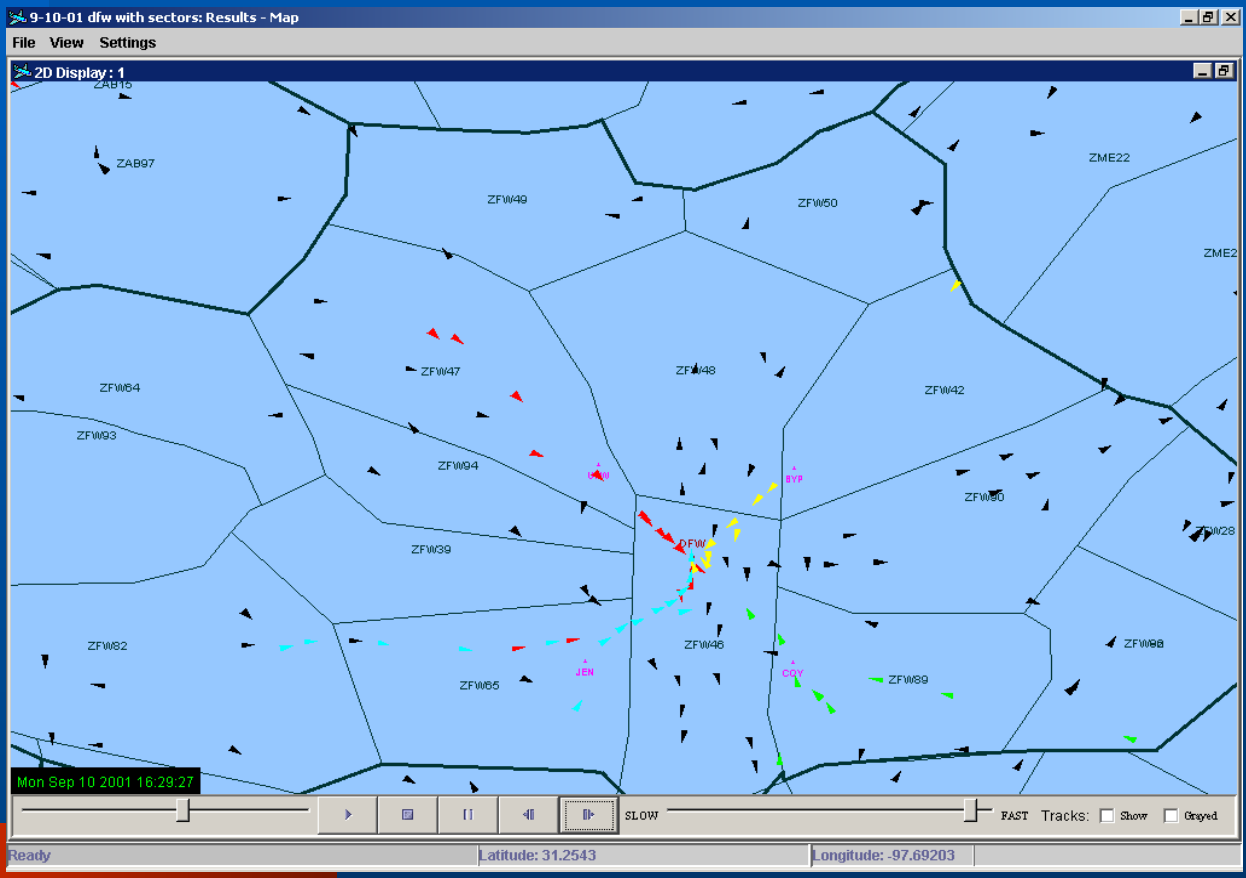


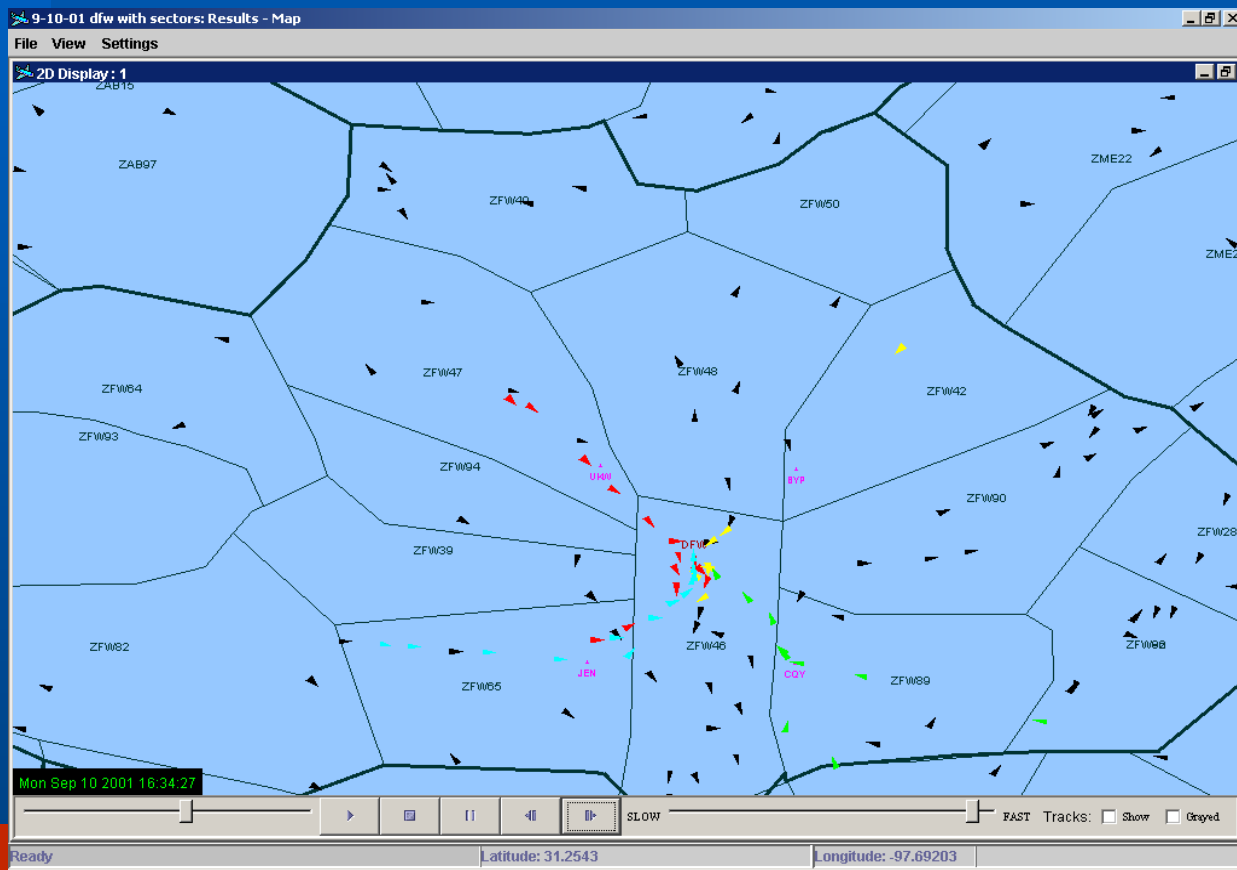












# AOC Scenario - Triggering Event

The scenario should represent a situation:

- where the triggering event is unexpected
- where the required response time to this event provides enough time for AOCs to be in the loop)



# AOC Scenario - Triggering Event

The scenario should represent a situation:

- where the event results in a 1-2 hour reduction of the acceptable arrival rate via UKW (but where this reduction is not down to 0 aircraft), thus making the impact of the prioritization of a large number of flights significant
- Close 13R; leave 18R open

# AOC Scenario - Criteria

**The scenario should represent a situation:**

- **presenting an opportunity to improve efficiency (i.e., solve a real problem)**
- **with an opportunity to improve efficiency by integrating AOCs in a decision making process that arises while the affected flights are enroute**
- **with a problem or problems that can potentially be solved using approaches within the scope of interest to NASA**

# AOC Scenario - Criteria

**The scenario should represent a situation:**

- **where the specifics can't be dealt with adequately with current technologies and procedures (baseline)**
- **where the proposed new technologies and procedures could potentially show a significant improvement over the baseline**

# AOC Scenario



**Similar actual event (12/16/01)**



# Search5: Results - Table

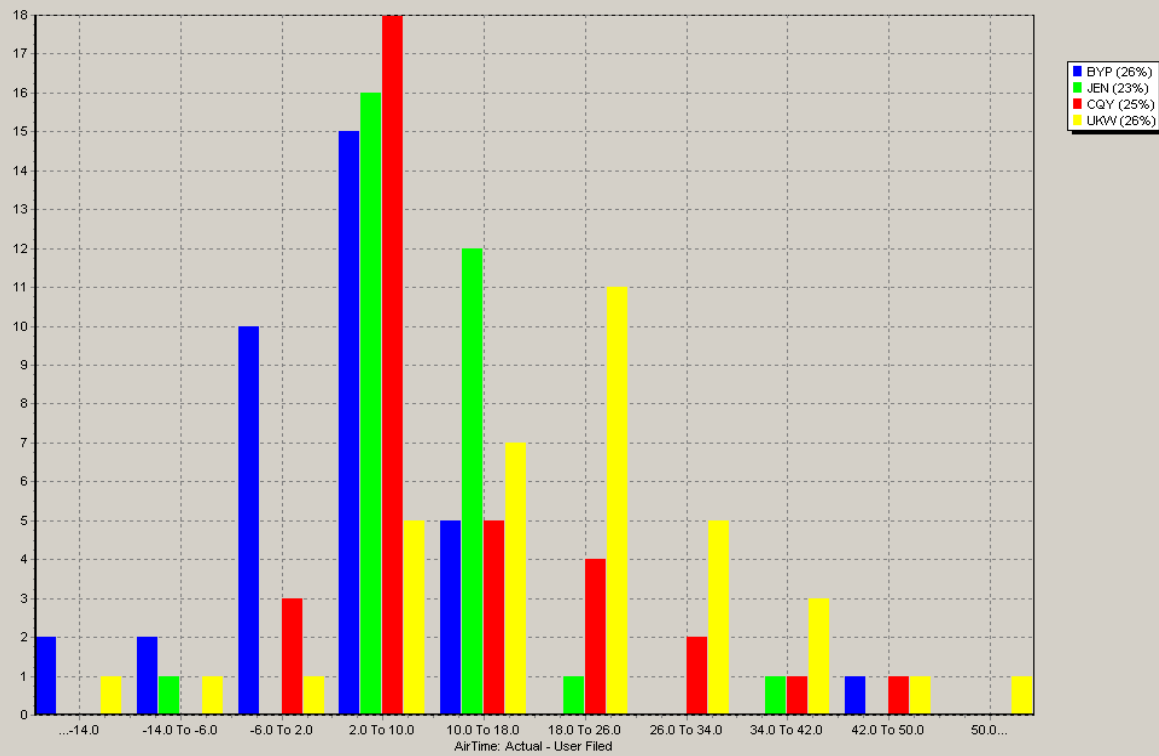
Search: Default; DataAtTimeOfRun: 11/04/2001 To 12/24/2001 0000; MinInstsForFlt: 1; ArrApt: DFW; Filed\_ArrDate: 12/16/2001; Filed\_ArrTime: 1600 To 1900; DataQuality: Standard

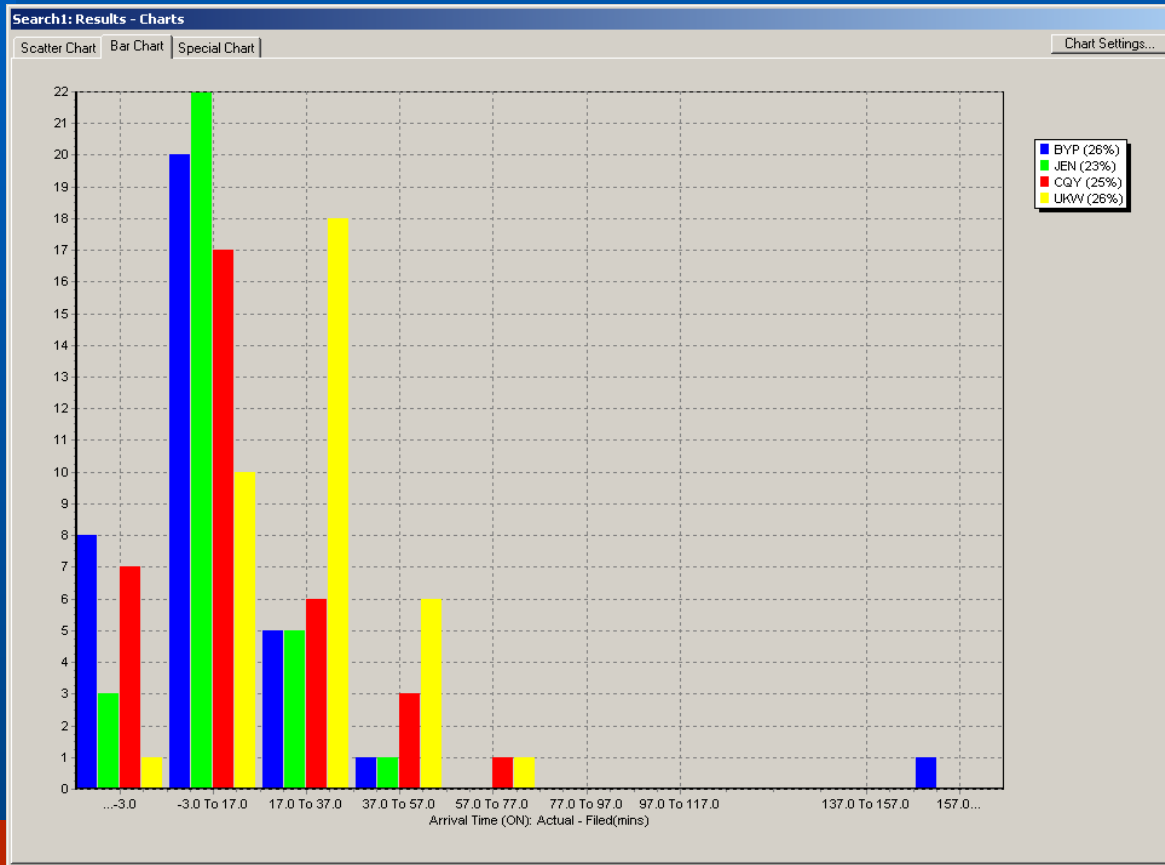
Airport: Arrival (actual)	Flights Included	Flights Deleted (By Data Quality)	Performance Metrics	Planned	Actual	Difference (Actual - Planned)		
DFW	137	20	AirTime (mins)	112.7	124.7	12.1	10.7%	
Subgroup By Arrival Fix: Filed								
+ <null> (1%)	1	0	AirTime (mins)	10.0	19.0	9.0	90.0%	
+ UKW (26%)	36	3	AirTime (mins)	115.9	136.1	20.3	17.5%	
+ CQY (25%)	34	8	AirTime (mins)	102.6	115.0	12.4	12.1%	
+ JEN (23%)	31	5	AirTime (mins)	102.3	113.1	10.8	10.6%	
+ BYP (26%)	35	4	AirTime (mins)	131.3	135.7	4.4	3.4%	

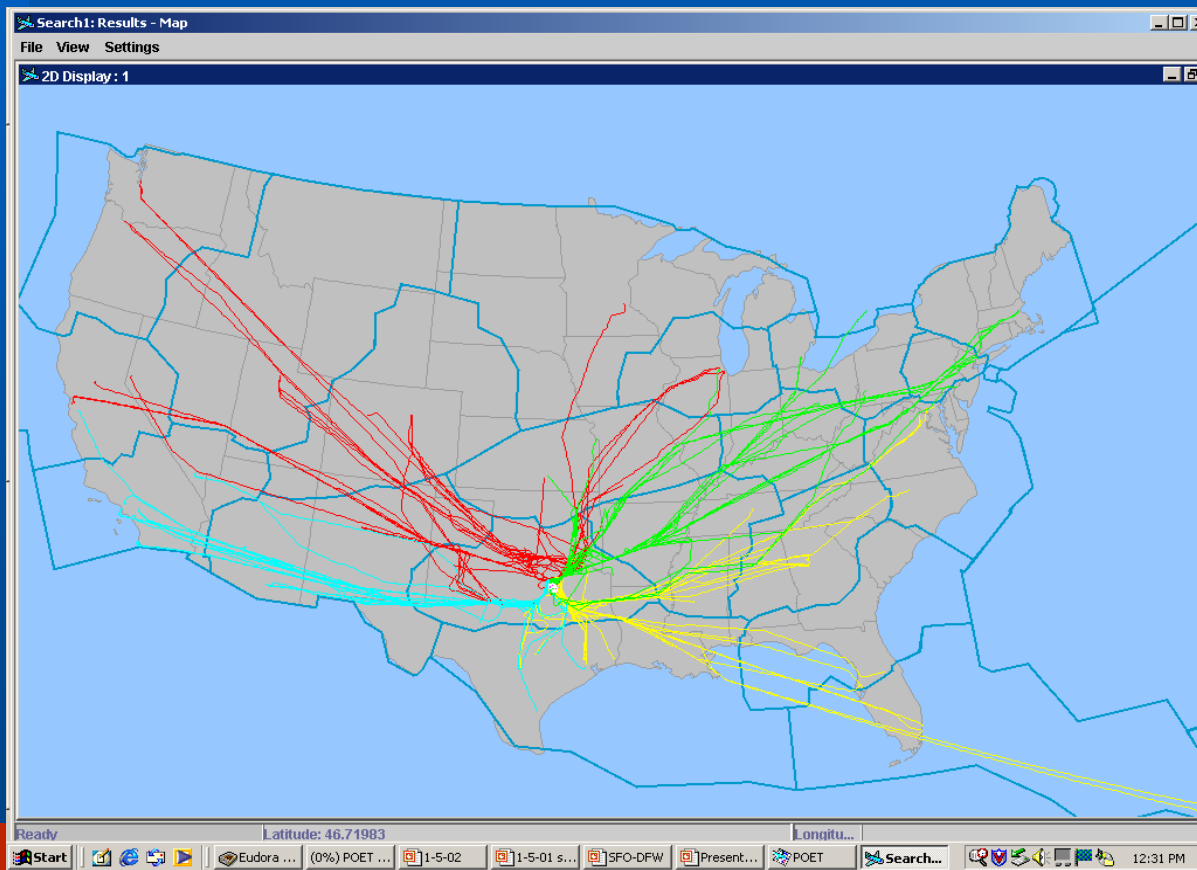
# Search5: Results - Charts

Scatter Chart Bar Chart Special Chart

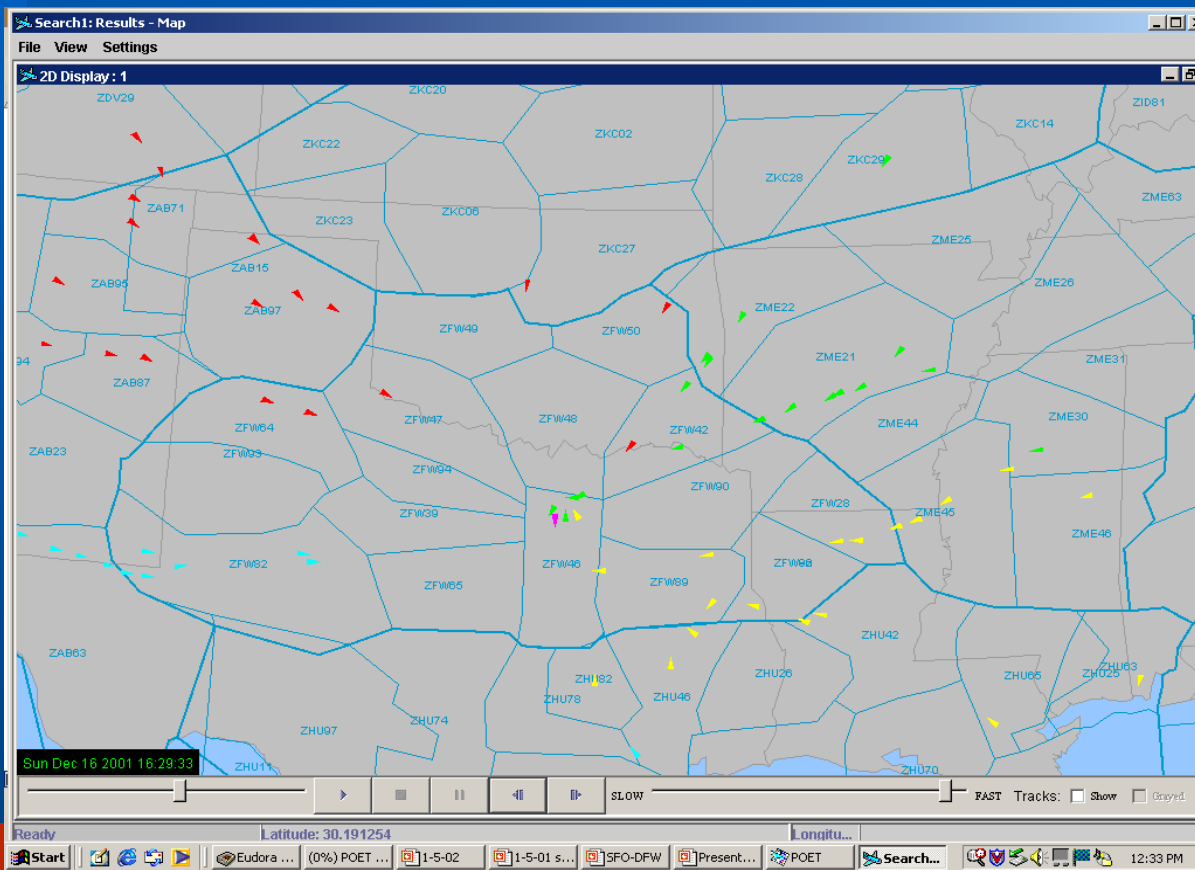
Chart Settings...

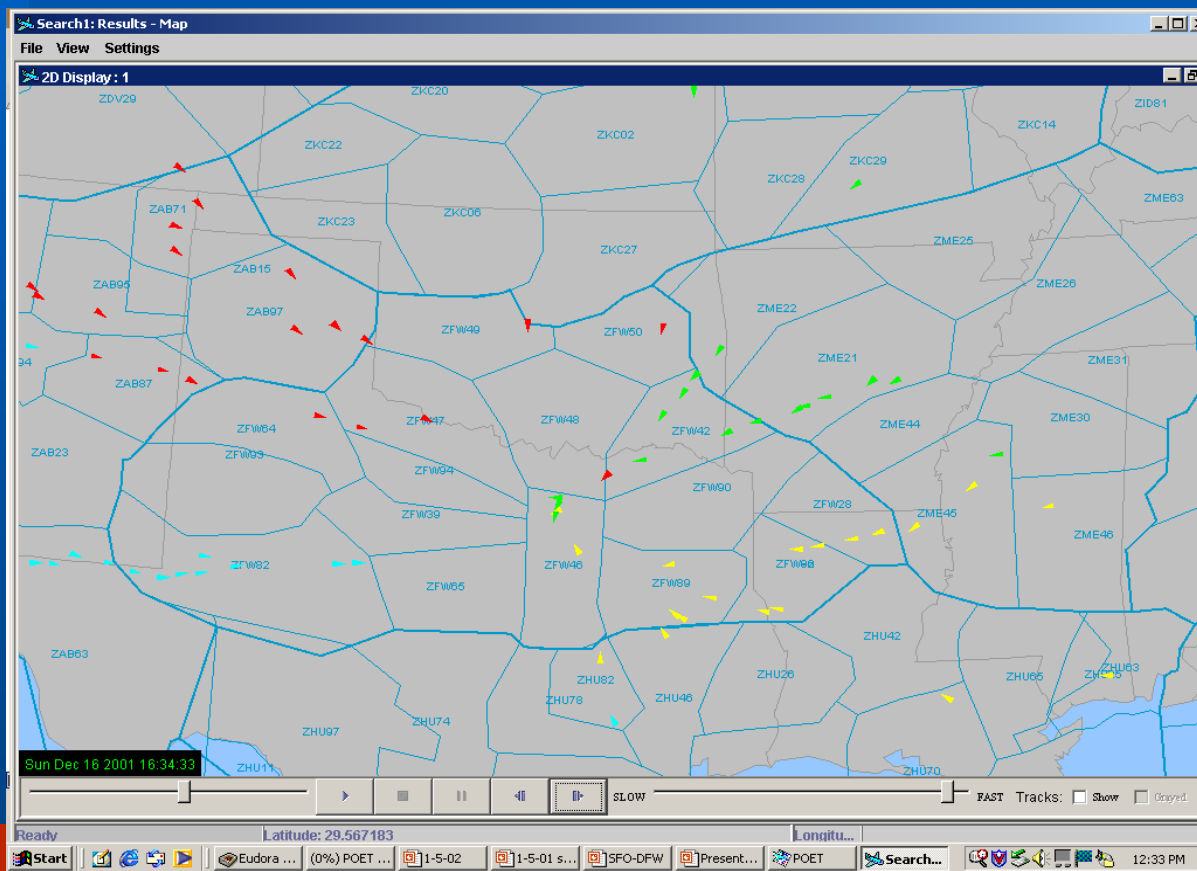


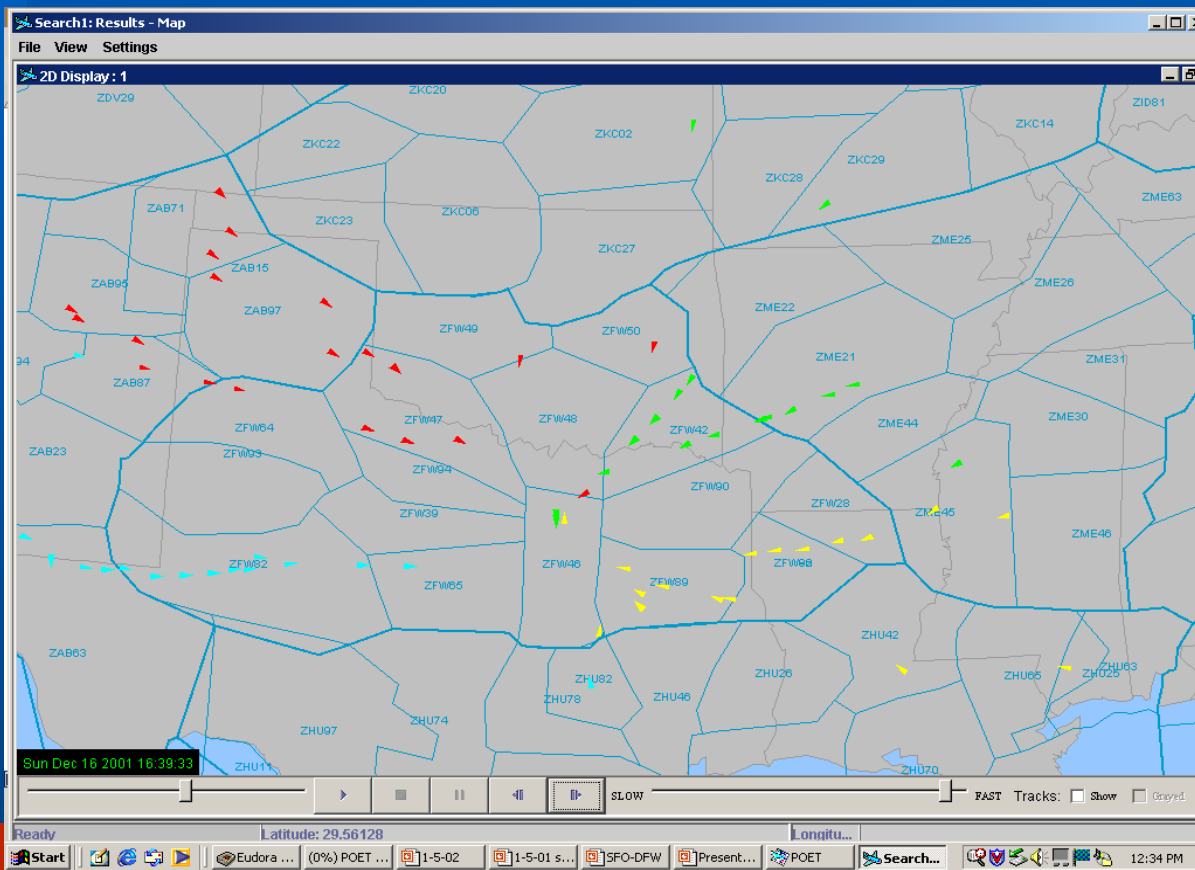


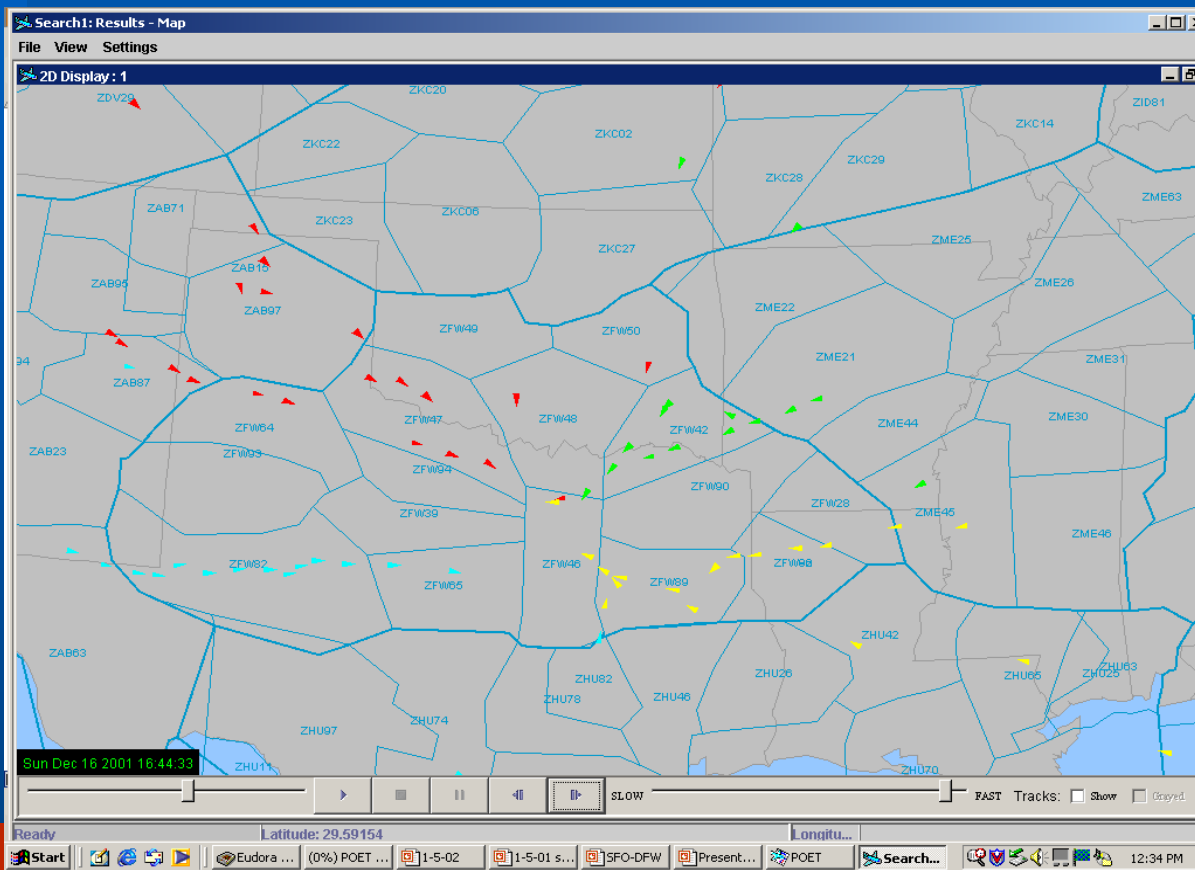


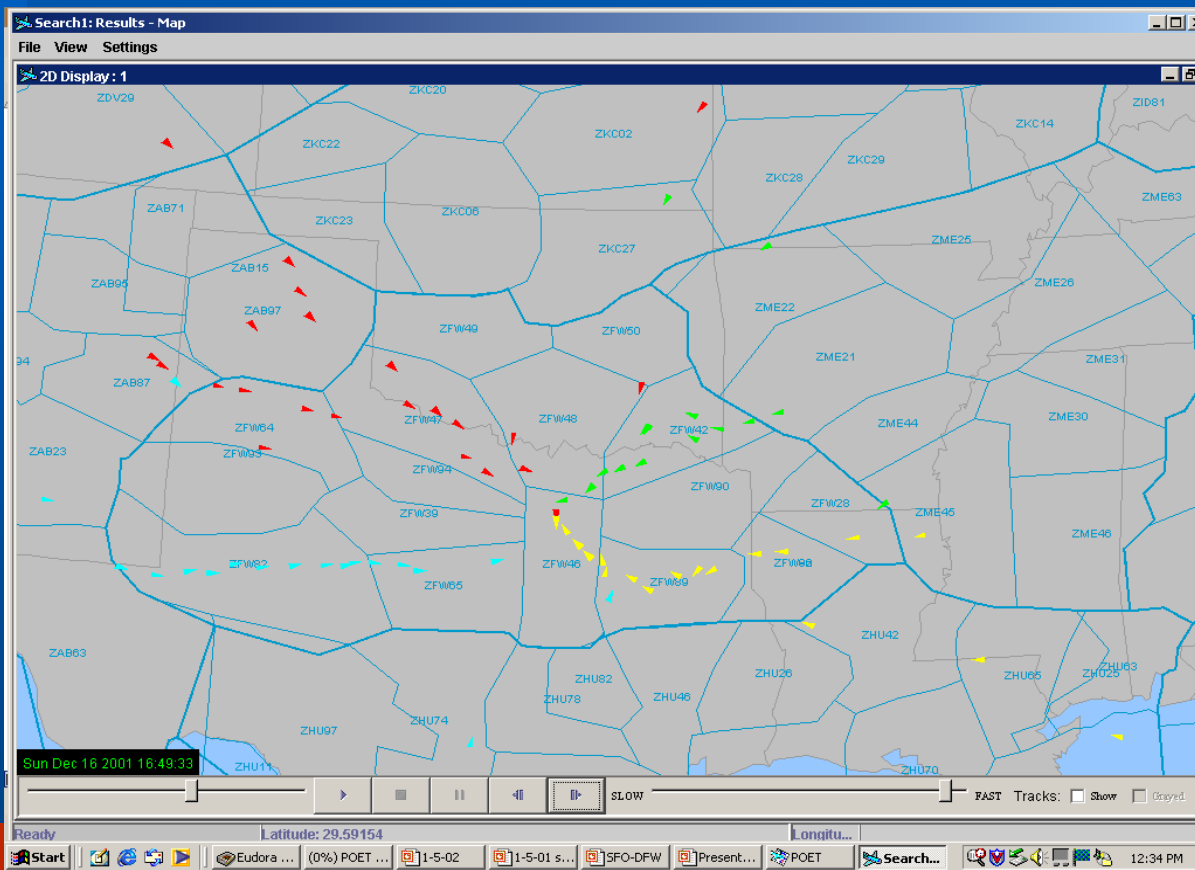


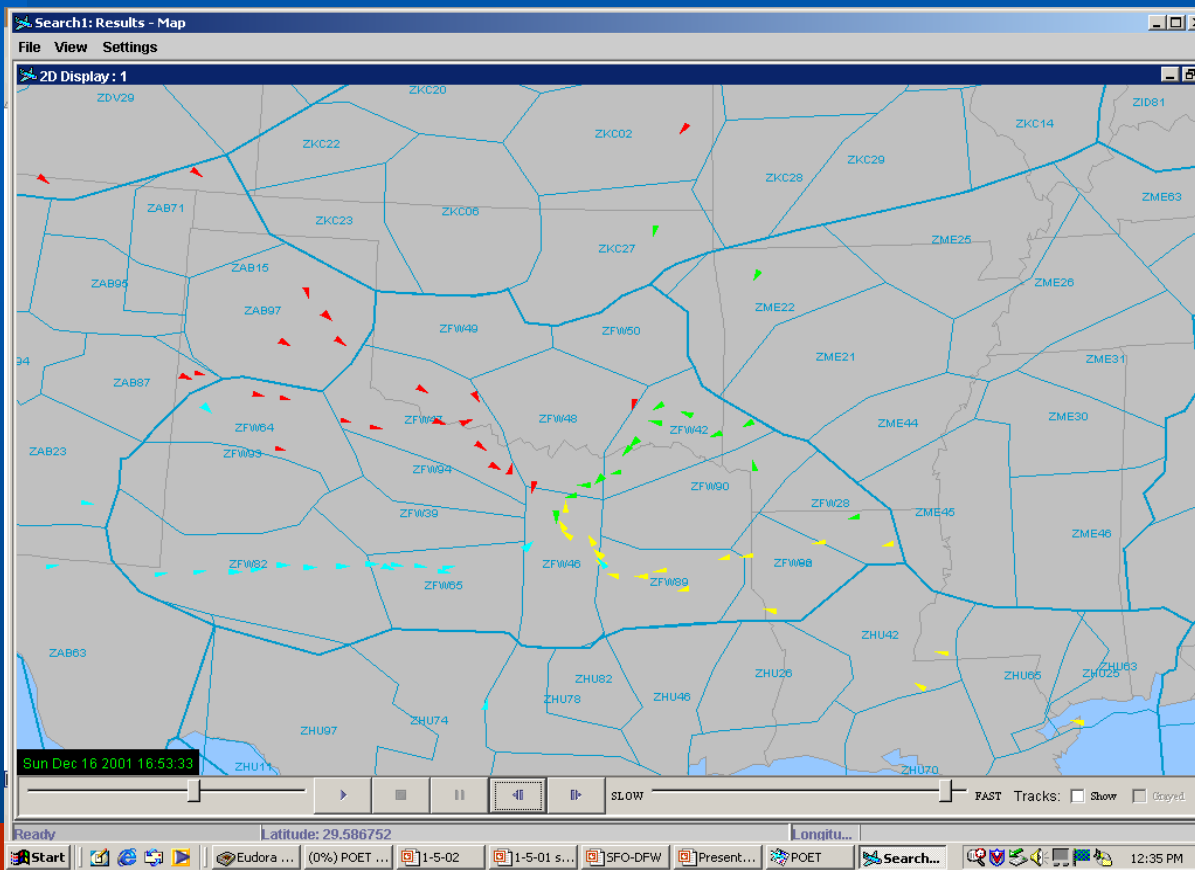


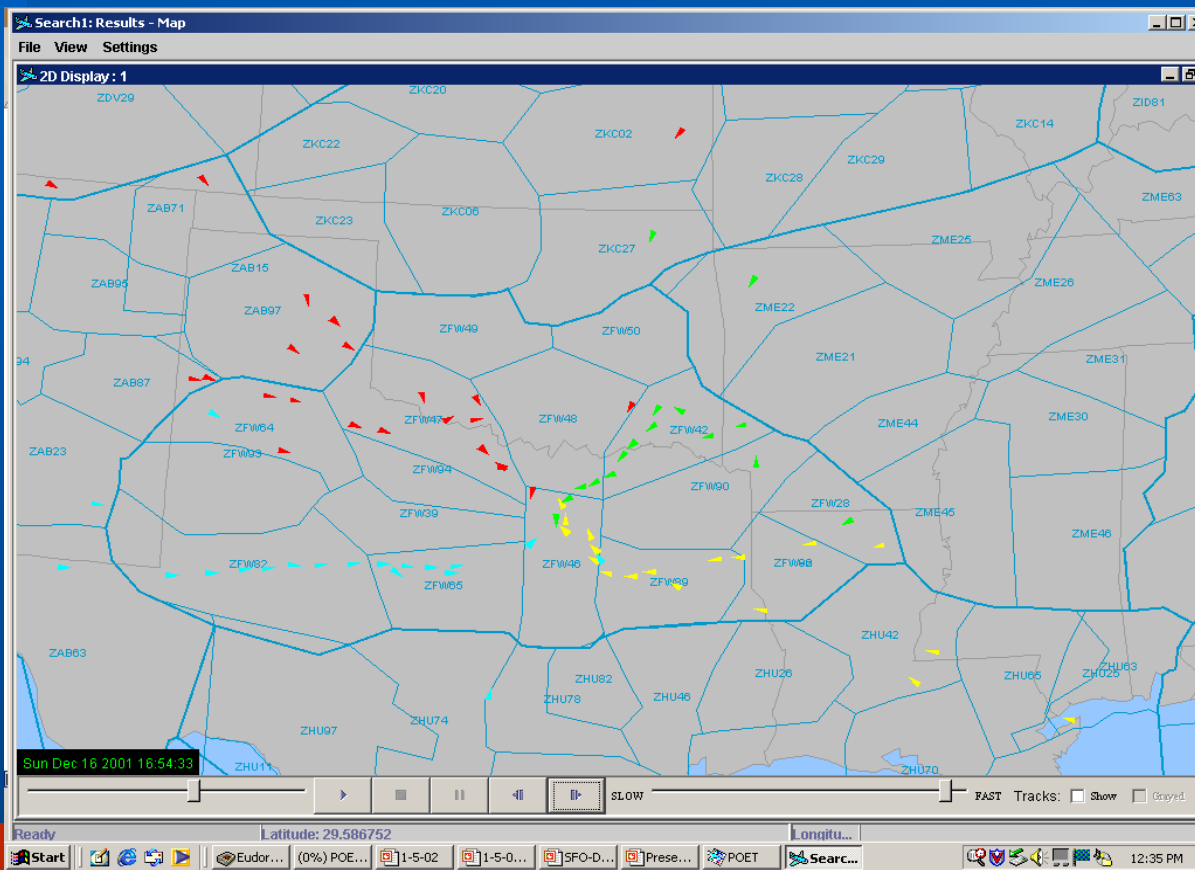


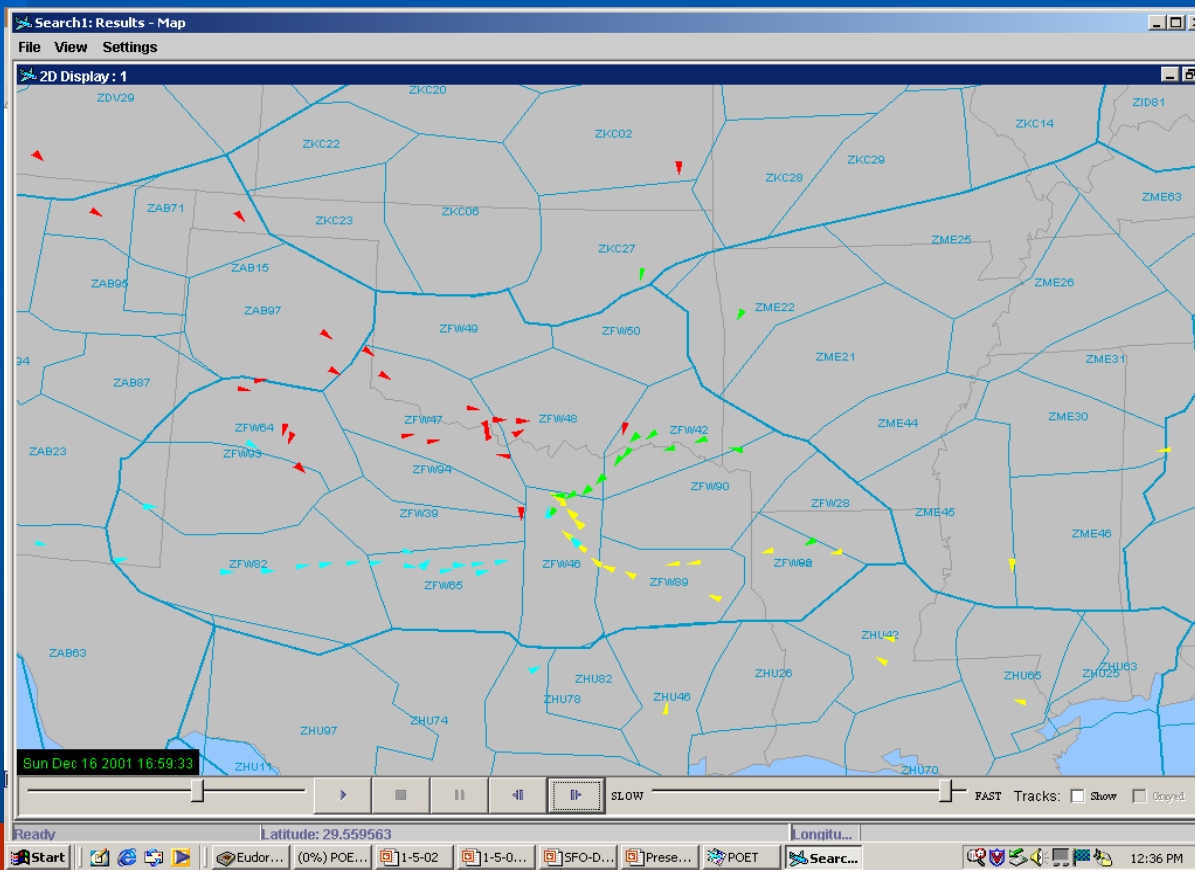




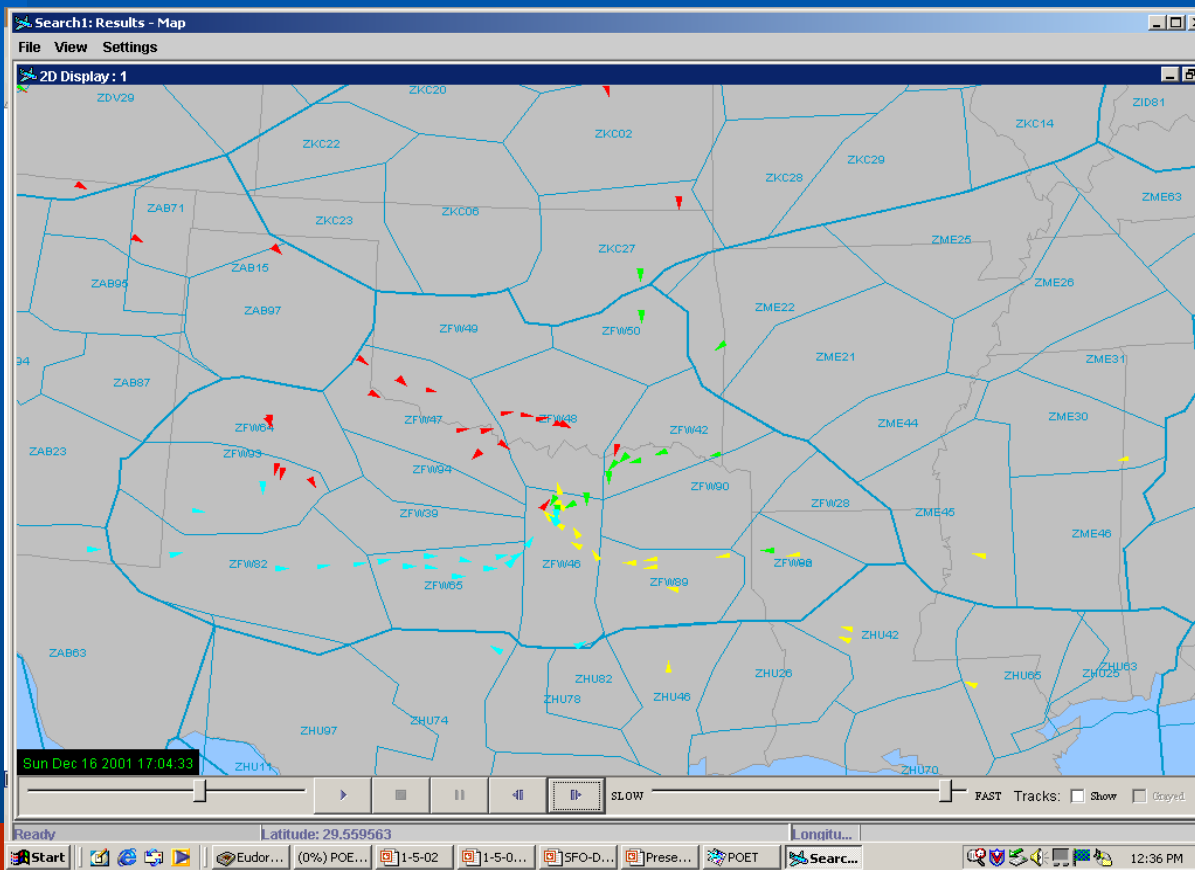


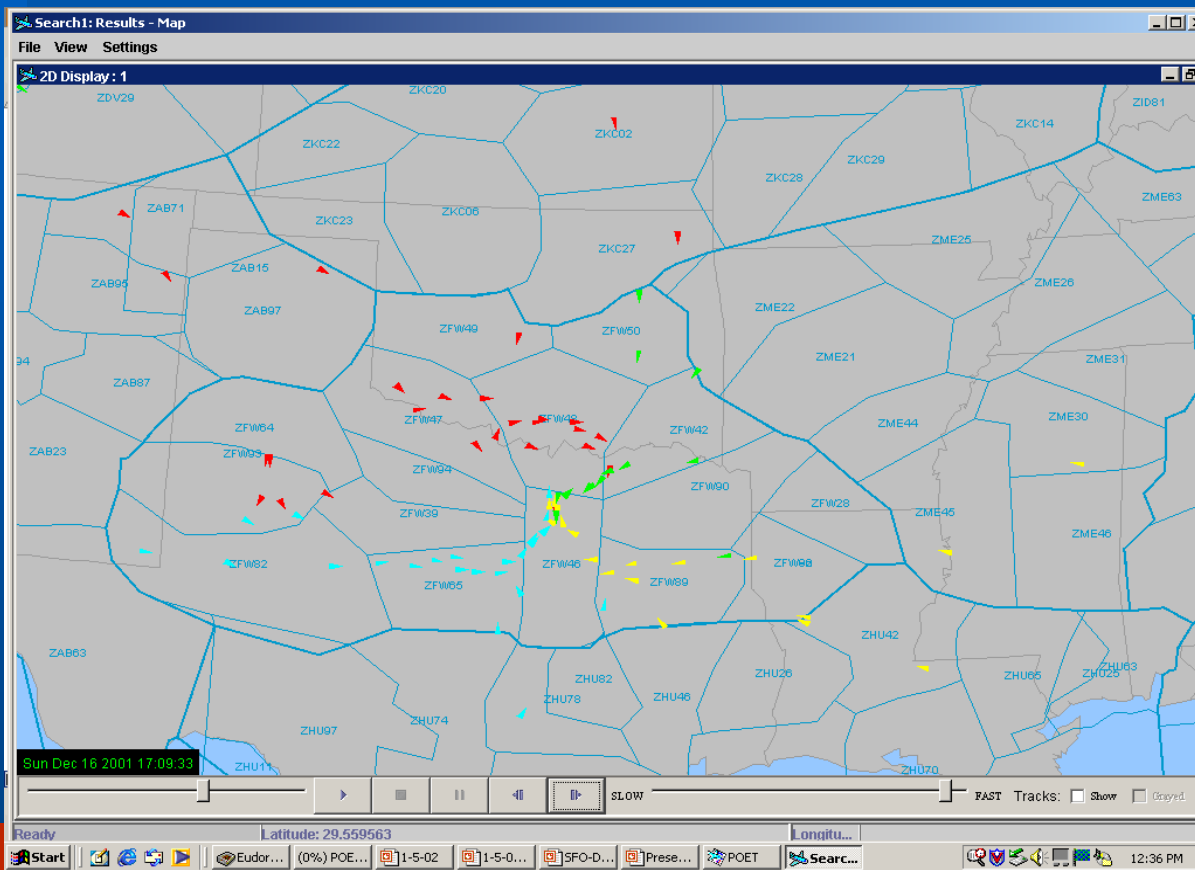


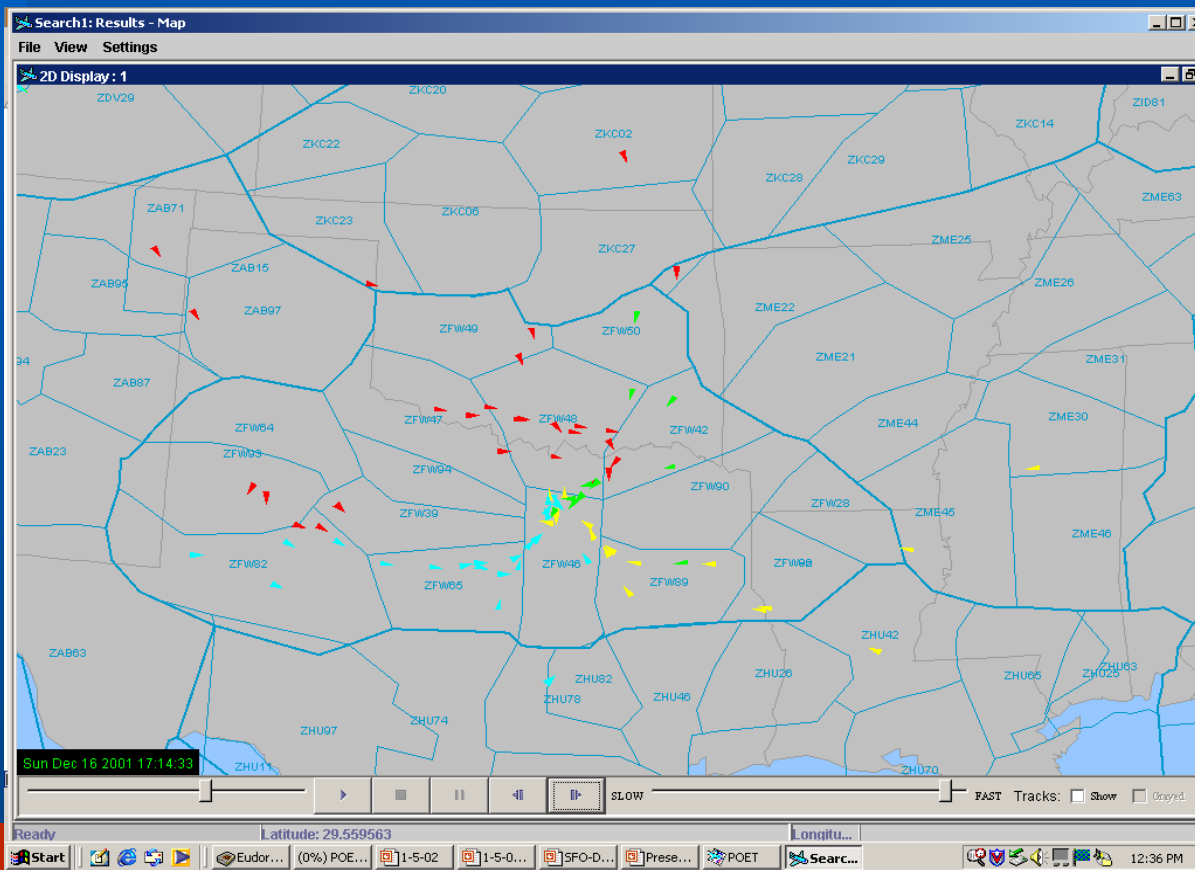


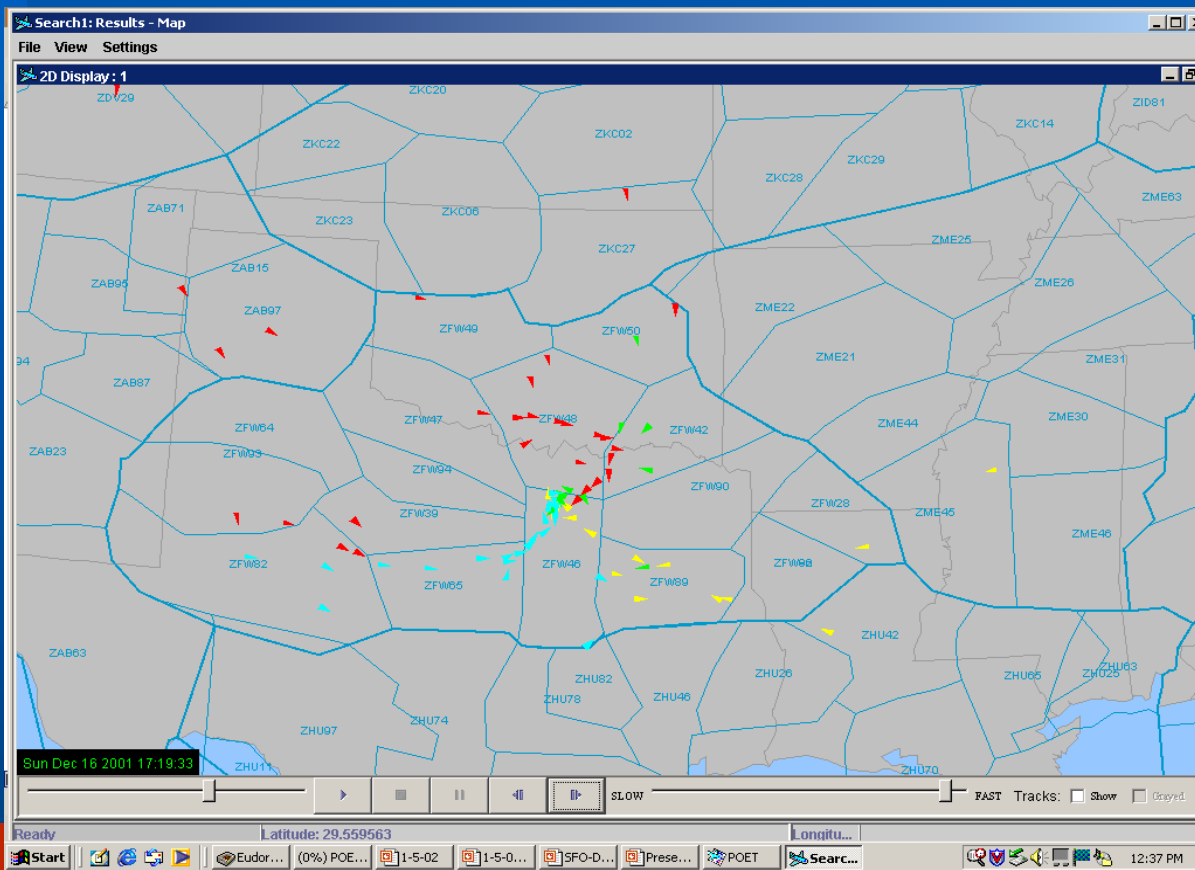


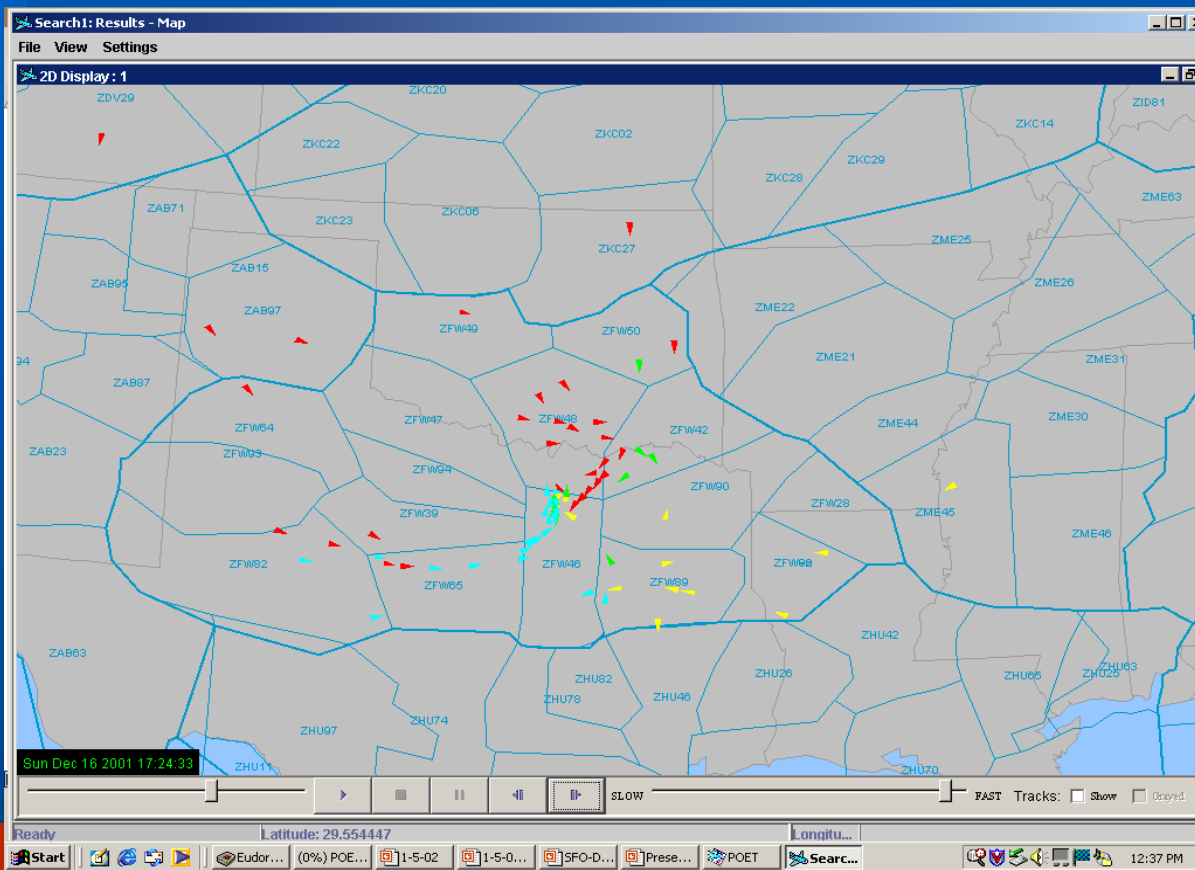


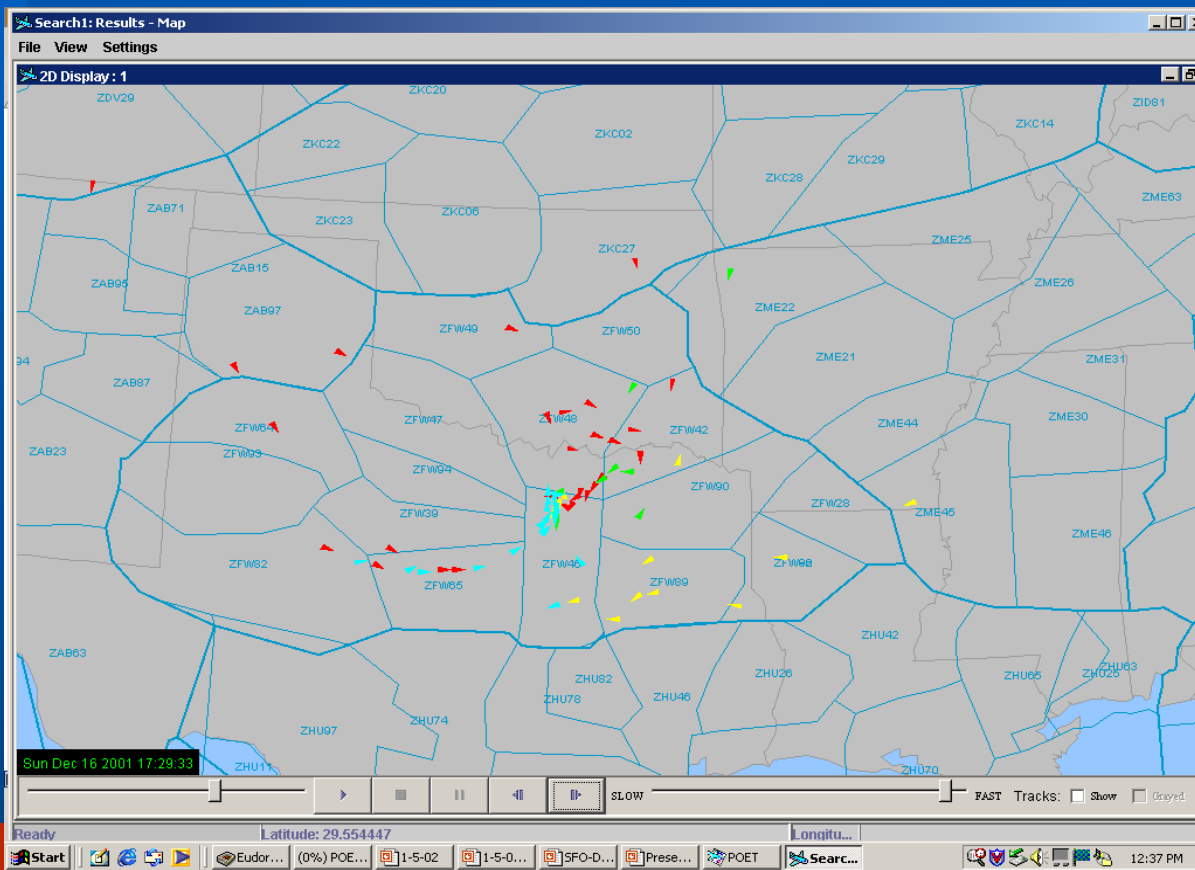


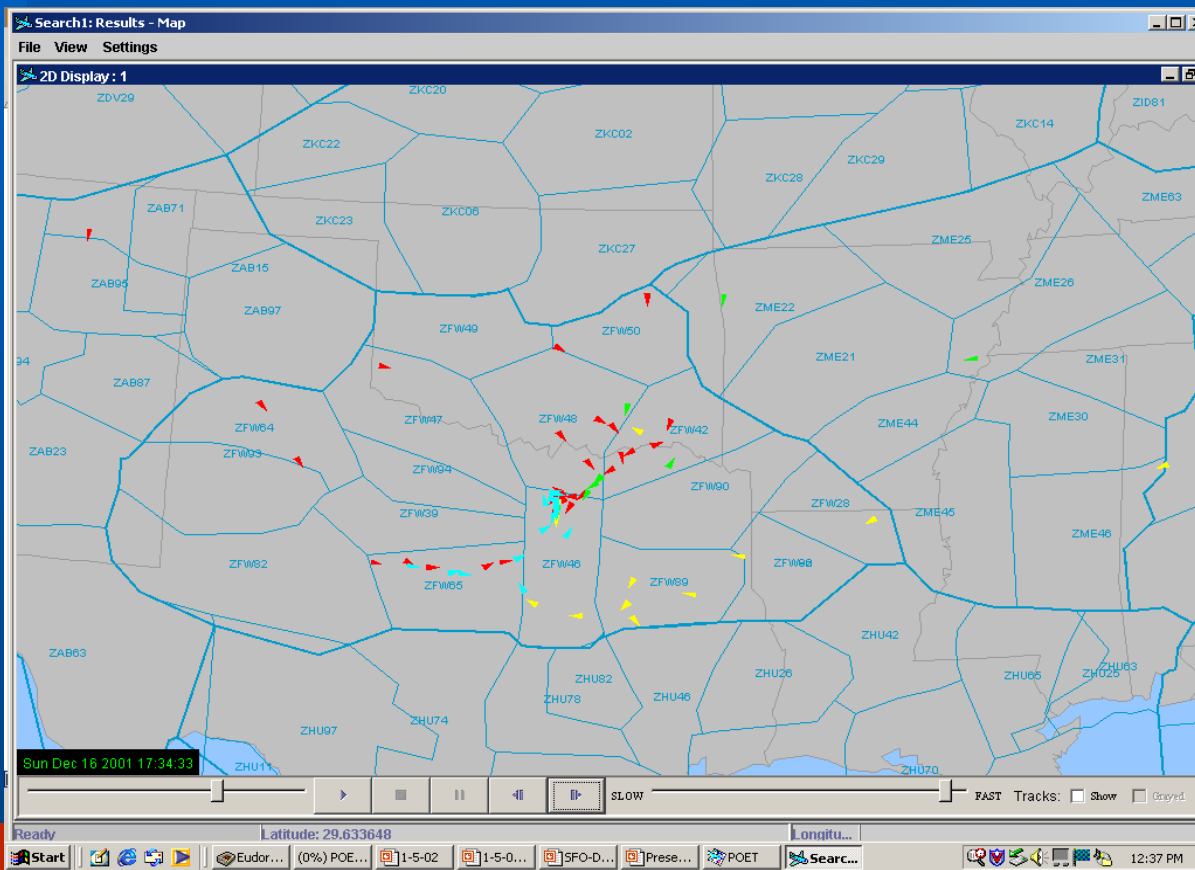


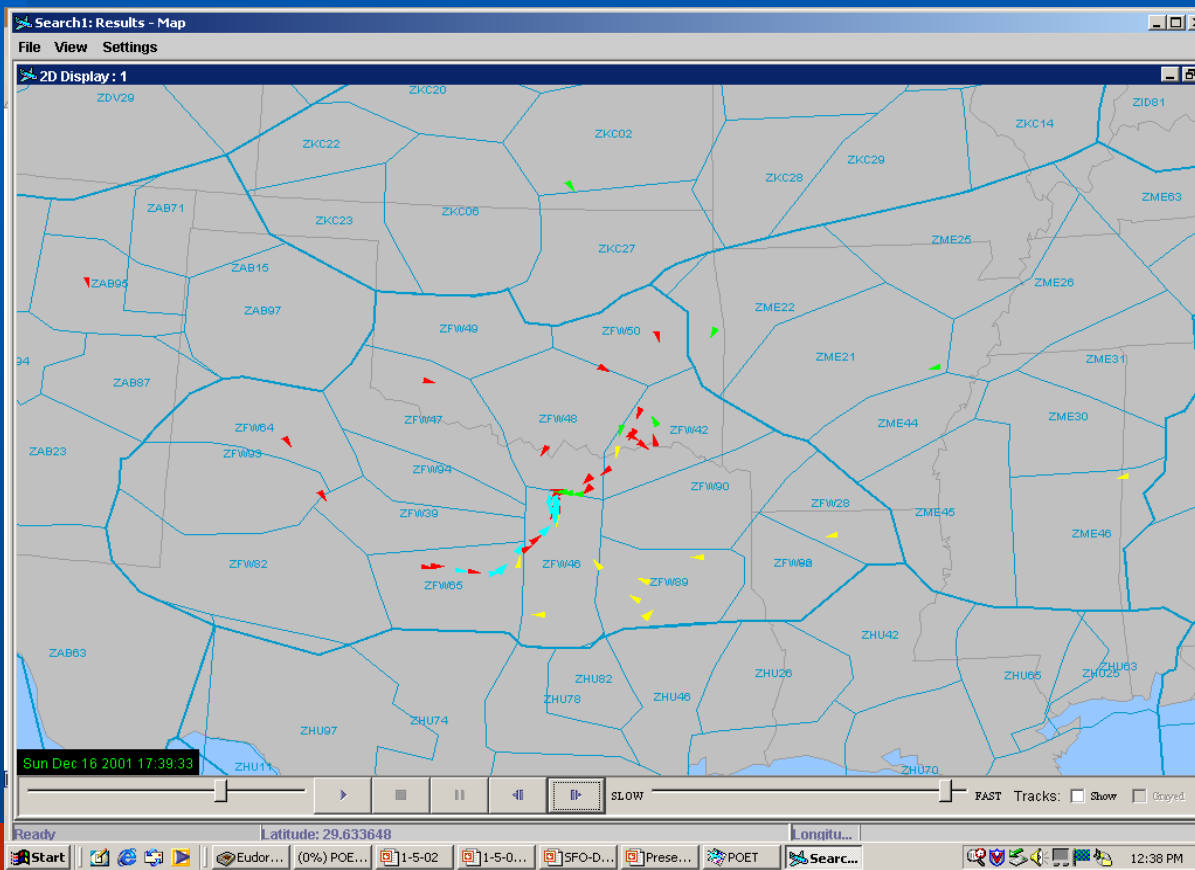




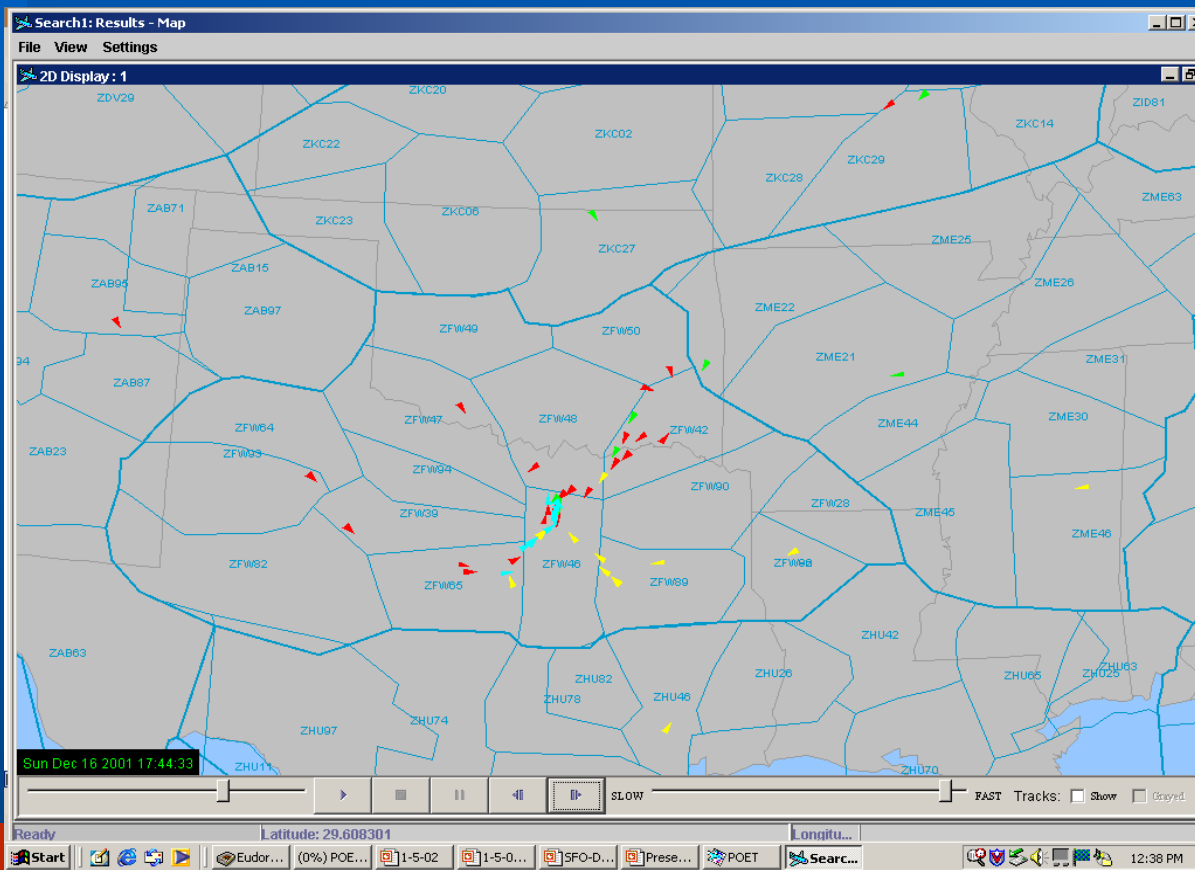


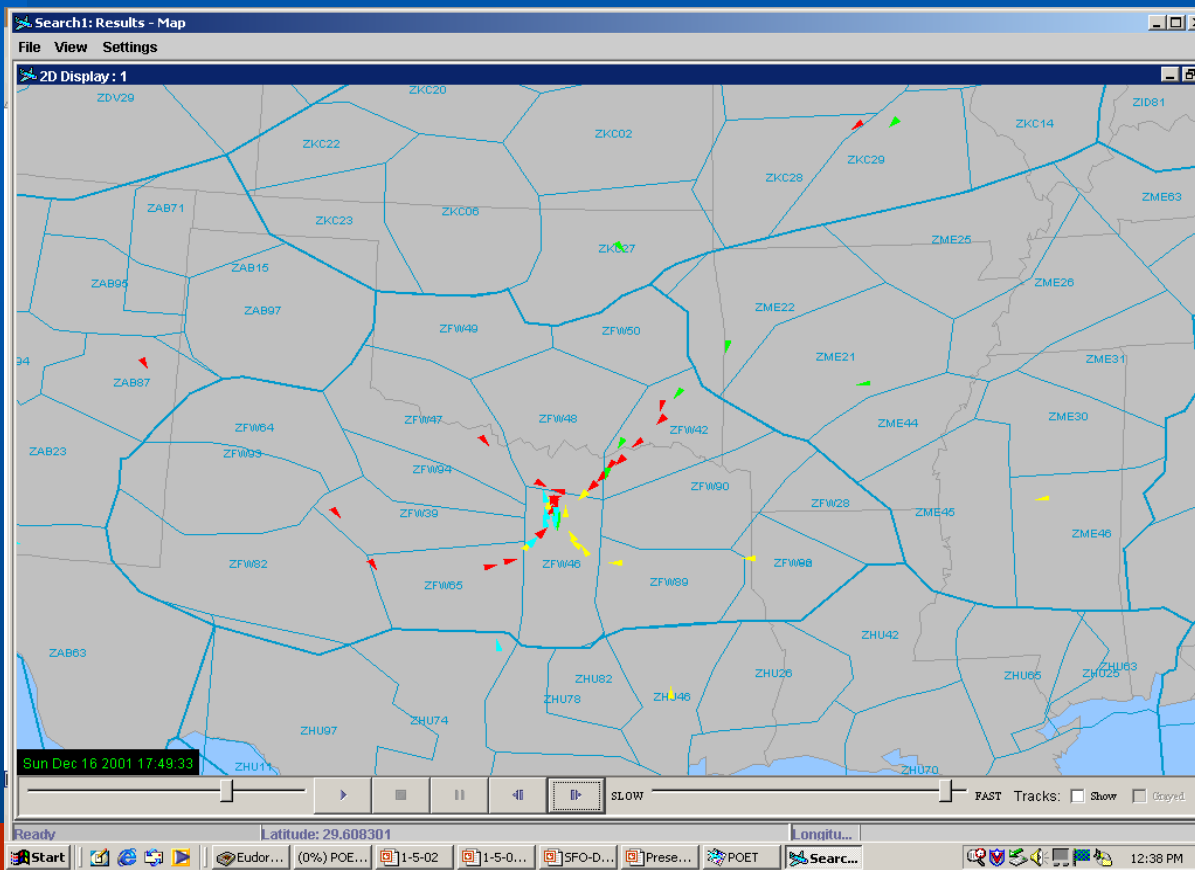


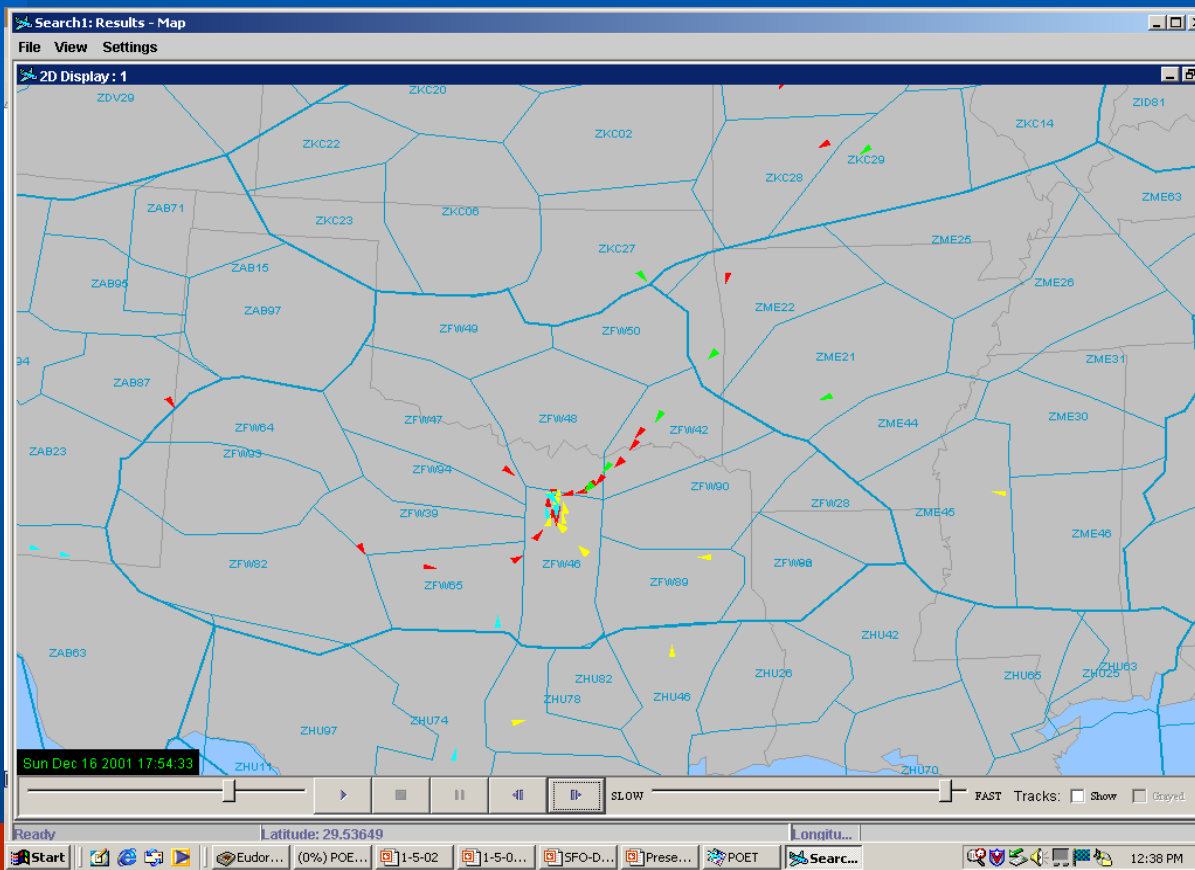


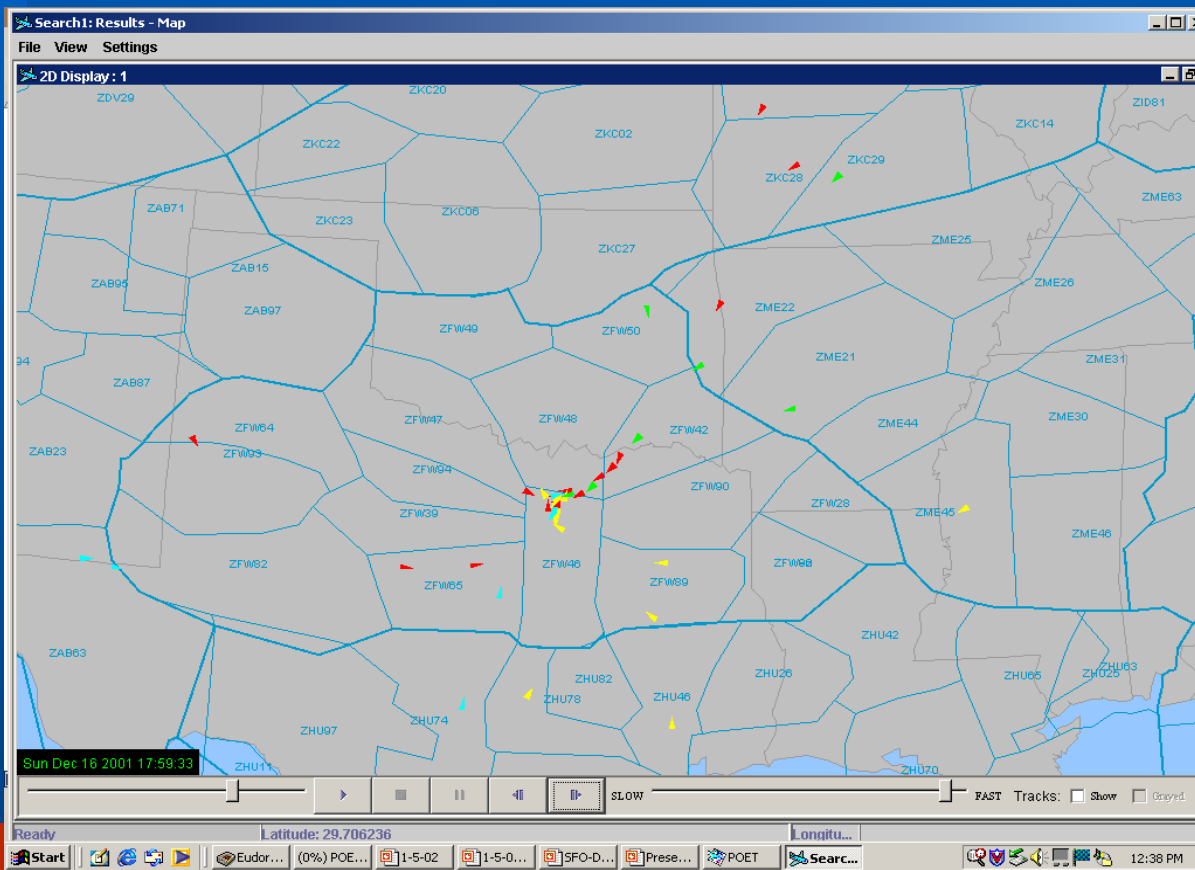


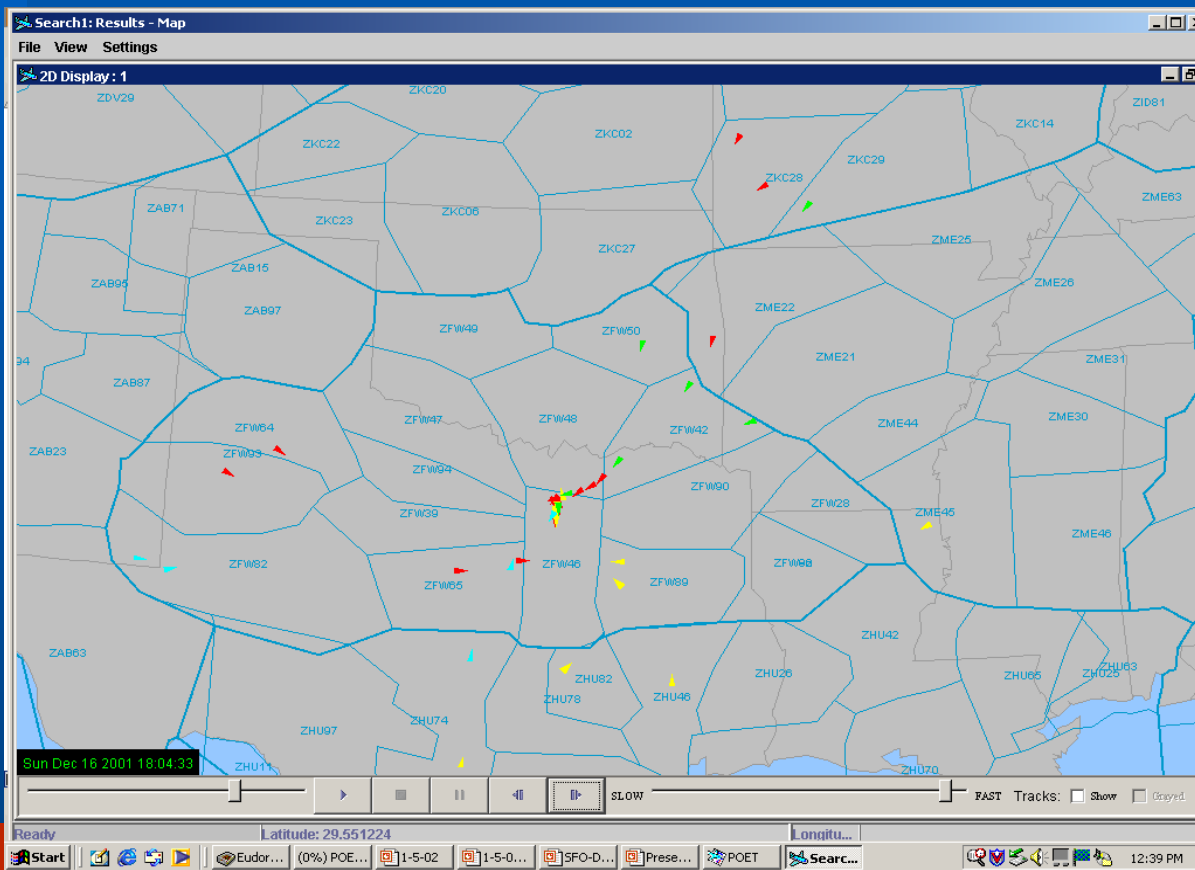


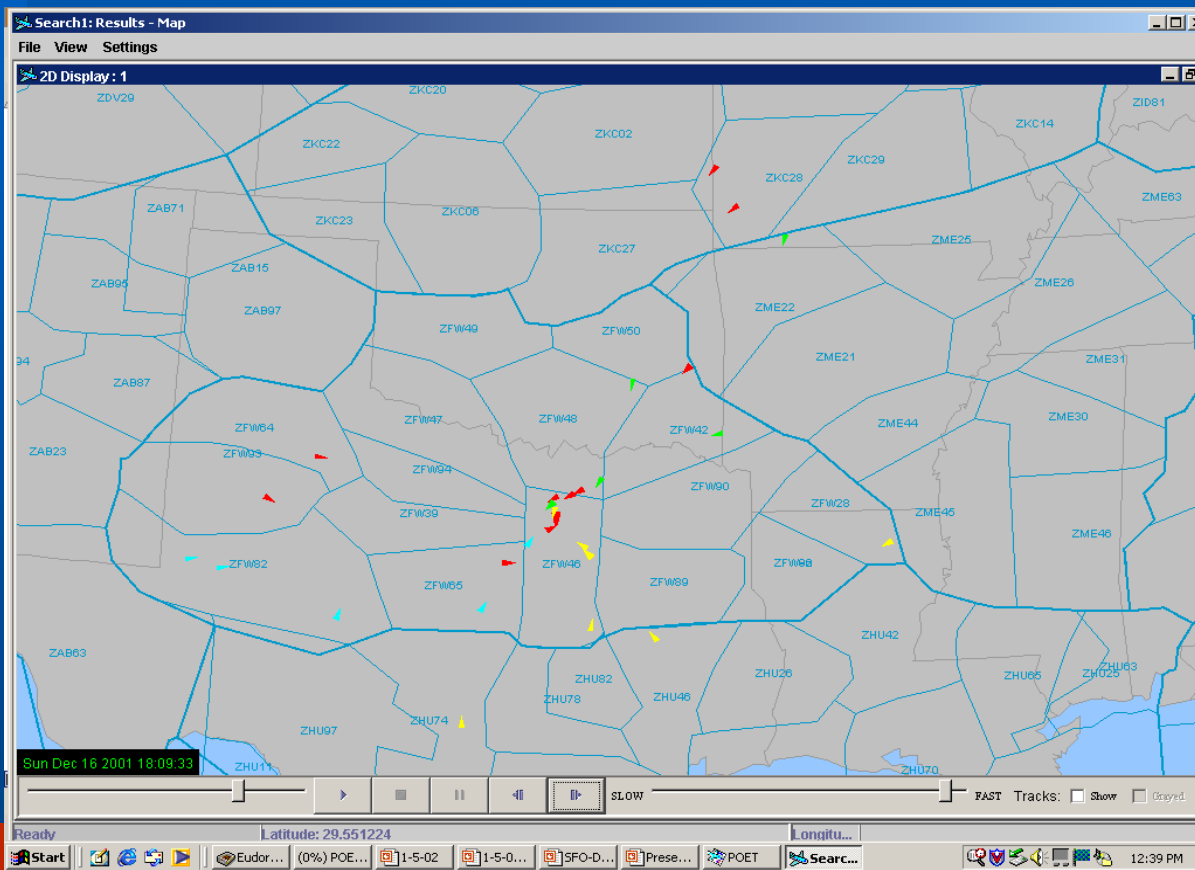


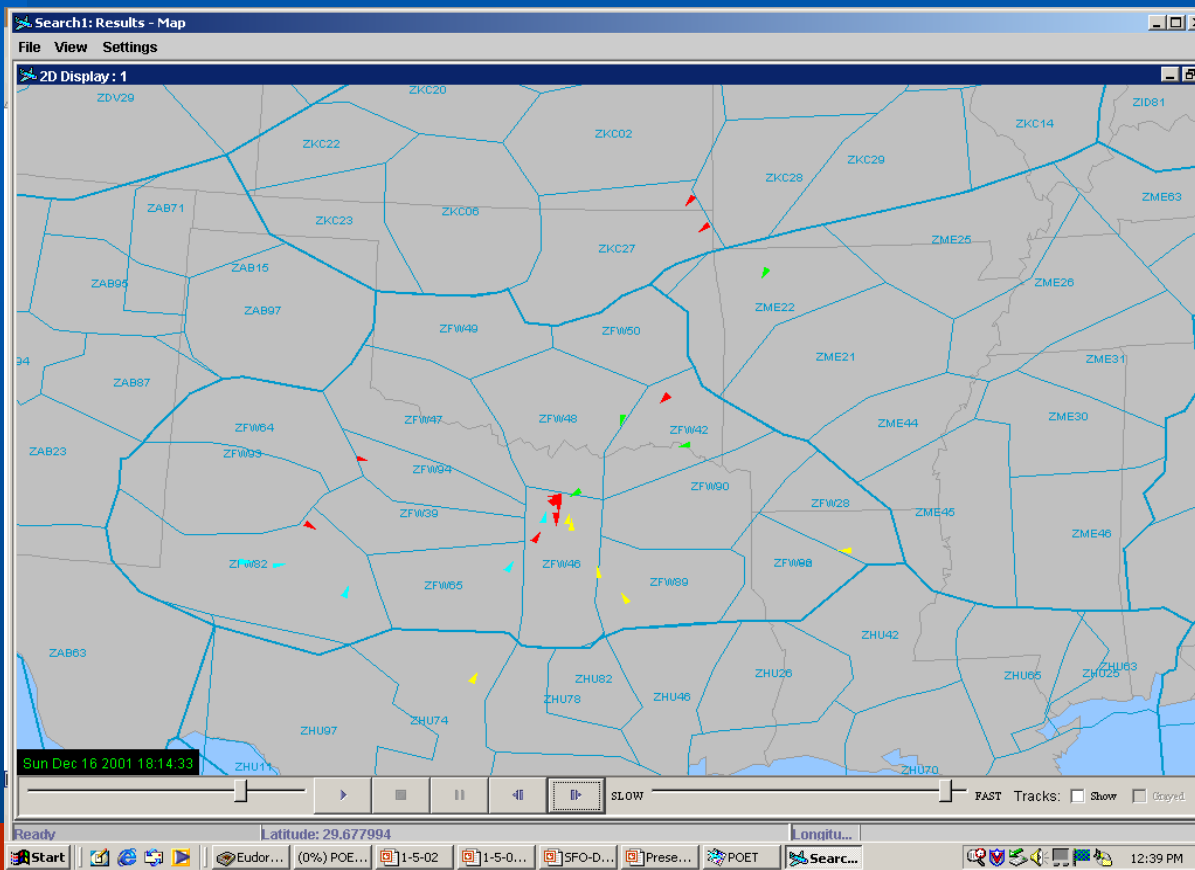












Microsoft Excel - 12-16-01 DFW filed arrivals 1600-1900									
File Edit View Insert Format Tools Data Window Help									
Type a question for help									
Arial 10 B I U									
Difference (Actual - Planned) AirTime (mins)									
A	B	C	D	E	F	G	H	I	J
1	Airport: Arrival (actual)	Flights Included	Flights Deleted	Planned AirTime (mins)		Actual AirTime (mins)		Difference (Actual - Planned)	Percent AirTime (Planned)
2	DFW	137	20	112.7		124.7		12.1	10.70%
3	Subgroup By Arrival Fix: Filed								
4	<null> (1%)	1	0	10		19		9	90.00%
5	UKW (26%)	36	3	115.9		136.1		20.3	17.50%
6	12/16/2001 EGF752			63		108		45	71.40%
7	12/16/2001 EGF566			38		58		20	52.60%
8	12/16/2001 DAL1878			80		120		40	50.00%
9	12/16/2001 EGF848			37		54		17	45.90%
10	12/16/2001 AAL1678			44		63		19	43.20%
11	12/16/2001 UAL710			87		119		32	36.80%
12	12/16/2001 SKW730			85		116		31	36.50%
13	12/16/2001 CAA895			45		60		15	33.30%
14	12/16/2001 DAL1614			167		221		54	32.30%
15	12/16/2001 AAL456			88		115		27	30.70%
16	12/16/2001 AAL2306			100		127		27	27.00%
17	12/16/2001 CAA784			45		57		12	26.70%
18	12/16/2001 AAL2038			88		111		23	26.10%
19	12/16/2001 AAL462			83		102		19	22.90%
20	12/16/2001 DAL910			189		231		42	22.20%
21	12/16/2001 DAL816			89		107		18	20.20%
22	12/16/2001 EGF538			75		90		15	20.00%
23	12/16/2001 DAL1786			170		202		32	18.80%
24	12/16/2001 AAL432			197		232		35	17.80%
25	12/16/2001 SKW842			121		141		20	16.50%
26	12/16/2001 AAL1940			164		189		25	15.20%
27	12/16/2001 AAL1402			173		198		25	14.50%
28	12/16/2001 DAL596			181		207		26	14.40%
29	12/16/2001 AAL1713			176		200		24	13.60%
30	12/16/2001 DAL306			122		138		16	13.10%
31	12/16/2001 CAA430			43		48		5	11.60%
32	12/16/2001 AAL852			194		216		22	11.30%
33	12/16/2001 AAL802			182		202		20	11.00%
34	12/16/2001 NWA409			147		163		16	10.90%
35	12/16/2001 AAL2319			127		137		10	7.90%



# AOC Scenario - Participants

**Participants in the real-world:**

- **ATCSCC, ARTCCs, DFW TRACON, DFW and DAL Towers**

**traffic managers  
controllers**

- **pilots**
- **AOCs**

**with DFW or DAL arrivals**

**with DFW or DAL departures**

**with ZFW overflights**

# AOC Scenario - Participants

**Participants in the real-world:**

- General aviation
- DOD

# AOC Scenario - Sequence

- detect event
- inform participants
- institute tactical responses
  - consider alternative system designs
- plan strategic responses
  - consider alternative system designs
- implement strategic responses
- institute tactical adjustments